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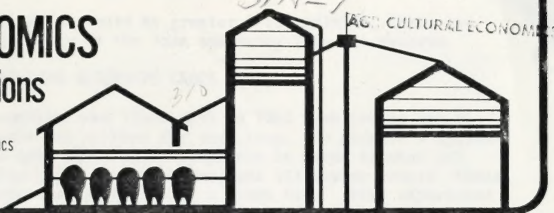
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



January, 1982

Valuing Farm Input Handbook
Section 6, No. 4

82-1/Crop Selection Considerations for 1982

The major factors to be considered in finalizing plans for 1982 crop plantings are cash availability, the effective use of yield-related inputs, and the provisions of the 1982 feed grain and wheat programs. In addition, grain producers in high-financed risk situations may want to examine closely the provisions of the federal all-risk program on crop insurance. On most farms, no extreme shifts in crop acreages are called for according to the crop-return budgets given in Table 1. At average yields, crop costs are expected to be 5 to 7 percent or even more above those for 1980-81. However, the increased costs affect all crops, and the ratio between corn soybean prices is close to breakeven levels. So the main decisions will depend primarily on unique factors that affect the individual farms.

FARM PROGRAM FOR FEED GRAINS AND WHEAT

Since the 1981 Agriculture and Food Act was passed in late December, provisions for carrying out income and price support features for feed grains and wheat are not fully available at this time. However, in September the Secretary, anticipating authorization by the 1981 Act, announced that wheat farmers must comply with all reduced acreage requirements in order to become eligible for price support loans, target price protection, and farmer-owned reserve programs. Participating farmers must reduce their acreage of wheat planted for harvest by at least 15 percent from their 1981 wheat acreage base. Secondly, an area equal to 17.65 percent of the 1982 wheat acreage grown for harvest must be set aside for conservation uses. There is no cross-compliance requirement to participate in other crop programs in order to be eligible for wheat program benefits. However, farmers cannot exceed 1981 wheat base acreage on any other farms they operate.

The levels of the price support loan and target price protection have been raised for the 1982 crops. The price support loan levels are \$2.55 for corn and \$3.55 for wheat and a minimum of \$5.02 for soybeans. The target price levels are \$2.70 for corn, \$4.05 for wheat, and comparable levels for grain sorghum, oats, and barley.

The effect of participation in the wheat program on crop returns is illustrated in Table 1. The comparison is between non-participation wheat crop returns over variable costs and the combined returns from 0.85 acres of wheat and 0.15 acres of set aside. The advantages of participation are modest and depend upon three factors: future market prices, relation of program yield to actual yields, and costs. If stored prices average \$0.45 below target, and program yields equal actual farm yields, there is a slight gain for participation. However, if stored prices received are lower than current expectations, or program yields higher than actual

28.1
29
2-1985

yields, then returns for participation would be greater. In addition, there are the gains associated with availability of the loan and entry into the reserve.

COMPARING ALTERNATE CROPS

The effects of different crop combinations (land use) on 1982 farm income can be determined by estimating the costs and returns for each crop. To prepare a systematic analysis, you will need to make three major judgments in terms of what you expect: (1) yields; (2) variable costs of production; and (3) market prices. These judgments are based on the information available at a given time. Past experience is helpful, but you must also look ahead.

Table 1 provides an example of a cost-and-return budget, comparing alternatives in order to help decide which crops to grow in 1982. The net returns over the variable costs incurred through harvest time are calculated for a wide range of yields. Only variable costs that change between crops need to be considered in budgeting the effect of different crop acreages on net farm income. However, the appropriate costs to be included under variable costs are not the same for all farms.

To help you make a cost-and-return analysis for your situation, the typical costs of producing crops at representative target yields are presented in Table 2. The cost figures are divided into variable costs, other costs, and land costs. The costs are for an owner-operator; if you are a tenant, include only the portion of the costs items that you furnish.

The variable costs listed in Table 2 include items that usually represent a cash cost that could be reduced if the crop is not planted or harvested. If your working capital is low, you are interested in reducing unnecessary cash expenditures. However, yields vary with the level of cash inputs for seed, pesticides, fertilizers, and fuel for drying. Consider cutting costs without cutting yields. If soil tests for P, K, and lime are high, you may delay maintenance applications. Monitor pest problems and use pesticides only on those acres where needed.

Other cost items include cash and unpaid inputs that usually are not affected over the short run. One exception is unpaid interest and bin costs for a stored crop, which applies only if the crop is actually stored. The cost will vary with the storage interval and value of the crop.

Finally, to complete the list of inputs for the total cost of producing crops, a land charge is made. The unpaid land charge is based on the equivalent cash rent for the quality of land necessary to attain the target yield for the crop. Cash rent for land capable of producing higher yields would need to be proportionately higher. Of course, if you are renting land on a cash basis, the actual payment is the appropriate figure to use in calculating total costs.

Table 1. Comparison of Crop Returns, 1982

	Target yield per acre	Estimated harvest delivery price per unit	Crop returns per acre	Variable costs per acre*	Returns over variable costs per acre
Corn (bushels)	100	\$2.50	\$250	\$148	\$102
	125	2.50	312	161	151
	150	2.50	375	176	199
	175	2.50	438	200	238
Soybeans					
Single crop (bushels). .	30	6.25	188	71	117
	40	6.25	250	77	173
	50	6.25	312	86	226
	60	6.25	375	98	277
Double crop (bushels). .	15	6.25	94	65	29
	20	6.25	125	69	56
	25	6.25	156	74	82
Wheat (bushels).					
Non-participation	36	3.40	122	60	62
Set aside	204**	0.45***	92	8	84
Participation****	---	---	118	52	66
Non-participation	45	3.40	153	64	89
Set aside	255**	0.45***	115	8	107
Participation****	---	---	147	55	92
Non-participation	54	3.40	184	72	112
Set aside	306**	0.45***	138	8	130
Participation****	---	---	177	62	115
Non-participation	63	3.40	214	81	133
Set aside	357**	0.45***	160	8	152
Participation****	---	---	206	70	136
Oats (bushels)	60	1.50	90	50	40
	80	1.50	120	54	66
	100	1.50	150	62	88
Hay (tons)	3.0	60	180	100	80
	4.5	60	270	129	141
	6.0	60	360	170	190

*Includes seed, pesticides, fertilizer, machinery repairs, fuel, drying costs, and interest on operating capital only (see Table 2).

**Program yield per set aside acre (0.85 x yield ÷ 0.15). Assumes target yield and program yield are equal.

***Estimated deficiency payment per bushel [target price (\$4.05) less estimated 5-month market price (\$3.60) times allocation factor (i.e. program acres ÷ harvested acres = 1.0) = \$0.45].

****Combined 0.85 acre of wheat plus 0.15 acre of set aside.

Table 2. Estimated Costs per Acre for Producing Crops, 1982

	Rotated corn (125 bu.)	Second- year corn (125 bu.)	Soybeans (40 bu.)	Wheat (54 bu.)	Oats (80 bu.)	Double- crop soybeans (20 bu.)	Set aside cover crop	Alfalfa hay (4.5 tons)
Variable costs:								
Seed	\$ 18	\$ 18	\$ 10	\$ 9	\$ 4	\$ 12	\$ 3	\$ 9
Pesticides	15	24	16	1	1	28	..	12
Fertilizer								
N	30	40	..	19	14	..	..	..
P, K, Lime	22	22	19	19	15	9	2	52
Machinery repair and fuel	31	31	27	18	16	15	3	43
Drying fuels and repair	15	15	..	..	..	..	..	..
Interest on operating capital	10	11	5	6	4	5	..	13
Total variable costs	\$141	\$161	\$ 77	\$ 72	\$ 54	\$ 69	\$ 8	\$129
Other costs:								
Machinery depreciation and interest	\$ 50	\$ 50	\$ 42	\$ 32	\$ 32	\$ 24	\$ 20	\$ 50
Labor	21	23	20	10	10	10	4	36
Management	17	17	14	10	6	7	..	14
Storing (interest and bin)	33	33	21	18	14	11	..	28
Miscellaneous	15	15	15	15	15	8	8	15
Total other costs	\$136	\$138	\$112	\$ 85	\$ 77	\$ 60	\$ 32	\$143
Land costs (cash rent)	\$110	\$110	\$110	\$110	\$110	..	\$110	\$110
Total all costs	\$387	\$409	\$299	\$267	\$241	\$129	\$150	\$382

BREAKEVEN PRICES AND YIELDS

Another way to analyze the crop decision between corn and soybeans is to estimate the breakeven points. The breakeven soybean prices are presented in Table 3 for 3 corn-soybean yield ratios (2.5 to 1, 3 to 1, and 3.5 to 1) and 6 corn prices. A base yield of 40 bushels per acre for soybeans was used for each ratio. As the yield of corn increased, a greater difference in the production costs was used to calculate the breakeven soybean price.

Table 3. Breakeven Soybean Prices

Price of corn per bushel	Yields and yield ratios for corn and soybeans		
	100 to 40 (2.5 to 1)	120 to 40 (3 to 1)	140 to 40 (3.5 to 1)
	Difference in corn and soybean cost per acre		
	\$60	\$80	\$100
Breakeven soybean prices per bushel			
\$2.25	\$4.12	\$4.75	\$5.38
2.50	4.75	5.50	6.25
2.75	5.38	6.25	7.12
3.00	6.00	7.00	8.00
3.25	6.62	7.75	8.88
3.50	7.25	8.50	9.75

Given an estimated 1982 harvest price of \$2.50 for corn, the breakeven soybean prices in Table 3 can also indicate situations where soybeans may be more profitable than second-year corn. When corn yields are only 2.5 times soybean yields (100 to 40) and the difference in production costs is \$60 per acre, soybeans will be more profitable than corn when soybean prices are \$4.75 per bushel or greater. When corn yields are 3 times those of soybeans (120 vs. 40) and the cost difference is \$80 per acre, the expected soybean price must be \$5.50 or better. When corn yields are 3.5 times larger than soybeans (140 to 40) and the cost difference is \$100 per acre, the soybean price must be greater than \$6.25.

SUMMARY

To complete the evaluation of crop alternatives, consider not only differences in yields, prices received, variable costs, and cropping practices, but also such items as provisions of government programs, the availability of grain storage, the amount of grain needed for livestock feeding, weather variability, and soil conservation needs related to the quality of land available for crops.

R. A. Hinton

R.A. Hinton, Extension Specialist, Farm Management

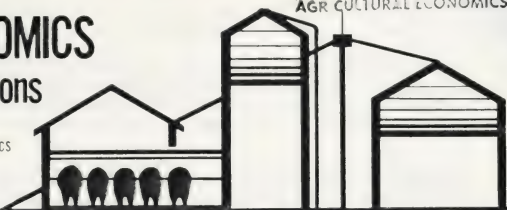


FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801

AGRICULTURAL ECONOMICS



January, 1982

82-2/The Agriculture and Food Act of 1981

The Agriculture and Food Act of 1981 represents another phase in the continuing evolution of our national agricultural and food policy. The major factors affecting the act in its final form were (1) a strong commitment by the Administration to reduce rising federal expenditures; (2) a joint desire of Congress and the Administration to protect producers from severe price declines but also to protect consumers from prices higher than necessary to provide adequate supplies; and (3) a desire to prevent the use of agricultural exports as a tool of foreign policy.

The period from the initial hearings to the final passage was one of the most protracted of any comprehensive agricultural and food legislation. For many concerned groups, it appears to have been less than satisfactory. However, when the final vote on the conference committee report was taken, a majority of members of Congress decided the act was the best that could be developed under the circumstances.

Passage of the act was delayed partly by the Administration's efforts to bring the estimated \$16.6 billion cost of the House bill closer to the Senate's estimated cost of \$10.6 billion. The final bill was estimated to cost \$11 billion over the next four years. The figure was thus close enough to be acceptable to the President. However, some believe that the cost over the next four years will exceed \$11 billion. Major provisions in the bill of interest to Illinois farmers are as follows:

DAIRY: The minimum support price for manufactured milk will continue at \$13.10 per hundred pounds until September 30, 1982. In December, this was about 73.6 percent of parity. The minimum support will be \$13.25 in 1983, \$14.00 in 1984, and \$14.50 in 1985. If net purchases should drop below \$1 billion per year, prices could be supported at 70 percent of parity. Or if the amount of net purchases were to drop below 4 billion pounds in 1983, 3.5 billion in 1984, or 2.69 billion in 1985, prices could be supported at a minimum of 75 percent of parity. For the first 11 months of 1981, government purchases of milk equivalent were 12.2 billion pounds. The cost of net purchases and related costs for the year ending June 30, 1981, was \$1.97 billion. Consequently, under the current supply-and-demand conditions, minimum support prices are likely to prevail over the next four years.

WOOL: The wool incentive price support will continue through 1985, providing 77.5 percent of the formula rate. The support for 1982 will be around \$1.37.

WHEAT: The minimum loan rate will be \$3.55 per bushel from 1982 through 1985. The target price will be \$4.05 in 1982, \$4.30 in 1983, \$4.45 in 1984, and \$4.65 in 1985.

However, if market prices do not average 105 percent of the loan, the Secretary of Agriculture could reduce the loan up to 10 percent but not below \$3 per bushel.

CORN: The minimum loan rate from 1982 through 1985 would be \$2.55. The minimum target price will be \$2.70 in 1982, \$2.86 in 1983, \$3.03 in 1984, and \$3.18 in 1985. However, if market prices do not average 105 percent of the loan, the Secretary could reduce the amount of the loan but not to more than 10 percent per year, or below \$2 per bushel.

OTHER FEED GRAINS: From 1982 through 1985, loans and purchase for crops of grain sorghum, barley, oats, and rye will be made available at a level which the Secretary determines is fair and reasonable in relation to corn, taking into account the feeding value and loan rates established for corn. Target prices will also be available for grain sorghum, oats, and, if designated by the Secretary, barley.

SOYBEANS: Support loans would be based on the most recent five-year average market price with the high and low years excluded. For 1982, the minimum loan rate would be \$5.02 a bushel. Growers will not be required to participate in any production adjustment program for soybeans or any other commodity to be eligible for soybean support loans. Soybeans are also excluded from the reserve program and no storage payments to producers are to be made.

SUGAR: Beginning October 1, 1982, raw cane sugar will be supported at 17 cents a pound with upward adjustments each year to 18 cents a pound in 1985. Beet sugar will be supported at fair and reasonable prices in relation to cane sugar. At this price, corn sweeteners can compete successfully with sugar, and the market will probably expand.

GRAIN RESERVES: The farmer-owned grain reserve is to continue for wheat and feed grains. The Secretary is required to establish safeguards so that wheat and feed grains held in the reserve shall not be used in any manner to "unduly depress, manipulate, or curtail" the free market.

The Secretary is given discretion to set the loan rate that he finds appropriate, but not to lower the regular loan rate; he will also specify the storage payment and release price. The loan period is a minimum of three years and a maximum of five years. Under emergency conditions, the Secretary may require repayment of loans before the maturity date. The rate of interest charged will not be less than the rate charged the Commodity Credit Corporation by the Treasury Department.

When the market price for a commodity in the reserve reaches the "trigger" price specified by the Secretary, loans can be repaid before the maturity date. The Secretary can also adjust storage payments or interest rates to encourage orderly marketing after the trigger price has been reached.

The Secretary may place an upper limit on the amount placed in the reserve but this amount must not be less than 700 million bushels of wheat and 1 billion bushels of feed grains. The Commodity Credit Corporation cannot sell any of its stocks of wheat or feed grains at less than 110 percent of the current trigger price. If it does, the Secretary may encourage repayments of producer storage loans.

ACREAGE REDUCTION PROGRAMS: The Act provides for three specific discretionary methods to encourage a reduction of acreage if either wheat or feed grain supplies are expected to be excessive. The methods are as follows:

Acreage limitation programs. This program will be carried out by applying a uniform percentage reduction to the acreage base for each feed grain or wheat-producing farm. Producers who knowingly produce feed grains or wheat in excess of the permitted acreage for the farm will be ineligible for feed grain or wheat loans, purchases, and payments for that farm. Under an acreage-limitation program, cross-compliance with any other program is not required.

Set aside programs. Under such a program, producers must set aside and devote to conservation uses a specified percentage of crop land (as determined by the Secretary of Agriculture) to be eligible for loans, purchases, and payments. Growers in a set aside program may be limited in the amount of acreage they can plant to wheat. Cross compliance may be required with other programs if a set aside program is established.

Land diversion payments. The Secretary may make land diversion payments to producers of wheat or feed grains whether or not an acreage limitation or set aside program is in effect if he determines that such diversion payments are necessary in adjusting the total national acreage of wheat or feed grains to desirable goals. Payments will be made to those producers who enter into contracts and agree to devote specified acreages of cropland to approved conservation uses.

AGRICULTURAL EXPORTS: If an embargo, imposed for reasons of national security or foreign policy, does not apply to all exports to a particular country, and if that country has imported more than 3 percent of the total exports of the commodity during the preceding year, a special provision applies. The compensation paid to farmers would be the difference between 100 percent of parity and the market price during the 60 days following the imposition of the embargo, or a loan at 100 percent of parity if a loan program is in effect for the commodity.

An Agricultural Export Credit Revolving Fund is authorized by which the Commodity Credit Corporation can help finance the export of commodities, breeding animals, and facilities to importing countries so that the capacity of such countries to handle, process, store, and distribute agricultural commodities exported from the United States is improved. A special standby export subsidy program is authorized to discourage foreign countries from subsidizing their exports of agricultural commodities.

Public Law 480, The Agricultural Trade and Assistance Act of 1954 is extended through 1985, along with amendments, to encourage self-help measures in recipient countries.

FOOD STAMPS AND FOOD ASSISTANCE: Authorized expenditures for the year ending September 30, 1982, is set at \$11.3 billion. Further authorization for the program will be required after that date. Several provisions are included that will impose greater strictness relative to requirements, eligibility, and expenditures.

AGRICULTURAL RESEARCH, EXTENSION, AND TEACHING: Provisions in the 1977 Food and Agriculture Act are continued with amendments intended to strengthen the program.

Harold D. Guither

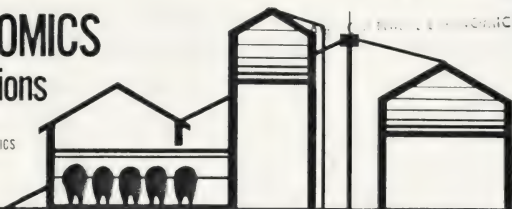
Harold D. Guither, Extension Economist, Public Policy



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



March, 1982

82-3/Considerations for Crop Selection and Acreage Reduction in 1982

ACREAGE REDUCTION PROGRAMS FOR FEED GRAINS AND WHEAT

All the provisions for carrying out income and price support features for feed grains and wheat are not fully available at this time. However, the Secretary has announced that feed grain and wheat farmers must comply with reduced acreage and set aside requirements in order to become eligible for price support loans, target price protection, and farmer-owned reserve programs. There are no cross compliance between crops nor offsetting compliance between farms required. And, the sign up period ends April 16, 1982.

The levels of the price support loan and target price protection have been raised to the following levels for the 1982 crops.

	<u>Corn</u>	<u>Sorghum</u>	<u>Barley</u>	<u>Oats</u>	<u>Wheat</u>
9 month loan price.....	\$2.55	\$2.42	\$2.08	\$1.31	\$3.55
Target price.....	2.70	2.60	2.60	1.50	4.05
Reserve loan price.....	2.90	2.75	2.37	1.49	4.00
Reserve trigger price.....	3.25	3.10	2.65	1.65	4.65

Farm producers participating in the 1982 feed grain program must reduce base feed grain acreage (corn and sorghum base and/or oats and barley base) by at least 10%. These bases will be the higher of 1981 acreage or the average of 1980-81 a acreage. In addition, the 11.1% of 1982 feed grain acreage planted for harvest must be set-aside for conservation uses.

Participating farmers in the wheat program must reduce their acreage of wheat planted for harvest by at least 15 percent from their 1981 wheat acreage base. Secondly, an area equal to 17.65 percent of the 1982 wheat acreage grown for harvest must be set aside for conservation uses.

EVALUATION OF PROGRAM PARTICIPATION ON CROP RETURNS

The effects of the maximum target price deficiency payments on the contribution of reduced acres to net crop returns is illustrated in Table 1. The maximum price deficiency would arise when the five month average price is equal to or

Table 1. Computation of Net Returns per Reduced Acre

	Corn		Wheat	
1981 acres	100		100	
% reduction required	10		15	
Maximum 1982 acres	90		85	
% acres in conserving crop	11.11		17.65	
Reduced acres	10.0		15.0	
Program yield, bu./A.	90	140	36	54
Production eligible for deficiency, bu.	8,100	12,600	3,060	4,590
Maximum deficiency	\$.15	\$.15	\$.50	\$.50
Total deficiency payment	\$1,215	\$1,890	\$1,530	\$2,295
Deficiency payment per reduced acre	\$ 121.50	\$ 189.00	\$ 102.00	\$ 153.00
Cost of cover crop per reduced acre	\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00
Net return per reduced acre	\$ 96.50	\$ 164.00	\$ 77.00	\$ 128.00

below the regular loan price. The calculation of the net returns per reduced acre for two program yield levels is shown for participants in both corn and wheat programs. These values should be compared to the expected net returns from other crop production. With price expectations below loan levels, the deficiency payments may increase total crop returns. Variable crop production costs and procedures for estimating net returns for alternate crops were presented in **Economics Facts and Opinions 82-1/Crop Selection Considerations for 1982**, January, 1982.

Eligibility for the loan and the farmer owned reserve provide stronger incentives for reducing acreages in 1982 than the prospective deficiency payments. The regular loan provides cash at harvest and enables the producer to earn returns for storage facilities. The loan also provides an assured price for his crop if excessive grain supplies result in a reduction in the expected 1982 crop price.

For producers able to participate in the 1982 farmer owned reserve, there are substantial gains from acreage reduction. Producers may enter the reserve immediately at harvest. Upon entry, producers will receive the higher reserve loan rate plus a year's storage payment in advance. This would generate more cash earlier in the crop year than would be possible by not participating and marketing more grain from storage later in the crop year. Also the reserve offers the chance of a higher price from this grain in the future. Future crop returns are enhanced by storage payments for the reserve but are offset by the need to use off farm commercial storage for subsequent crops and repayments of the first year's interest on the reserve loan.

The effects of participation in the grain reserve on accumulated net crop returns for three years are illustrated by the data and calculations in Table 2. Five alternative situations with farm storage budgeted for a low and a high price outlook are:

Table 2. Comparison of Net Return per Unit* Alternate Feed Grain Program Participation Situations

	Participant			Non-Participant	
	Grain Reserve		Loan Only Store on farm	Store on farm	Sell at harvest
	Store on farm	Store off farm			
Acres of corn	.9	.9	.9	1.0	1.0
Acres of set aside	.1	.1	.1	--	--
Corn yield (15.5% bu./A)	125.0	125.0	125.0	125.0	125.0
Bushels sold per unit*	110.5	110.5	110.5	123.4	125.0
LO PRICE OUTLOOK					
Market price or loan/bu.	\$ 2.90	\$ 2.90	\$ 2.55	\$ 2.55	\$ 2.20
Storage payment/bu.	.265	.265	--	--	--
Deficiency payment/bu.	.15	.15	.15	--	--
Interest earned/bu.	.38	.35	.28	.076	.264
1982-82 Crop returns					
Crop sales	\$320.	\$320.	\$282.	\$315.	\$275.
Storage deficiency & interest	88.	85.	48.	39.	33.
1982-83 Crop year costs					
Corn crop cost	\$145.	\$145.	\$145.	\$161.	\$161.
Cover crop costs	2.	2.	2.	--	--
Loan interest paid	--	--	0.	--	--
Storage charge	2.	33.	2.	2.	--
Net returns per unit*	\$259.	\$225.	\$181.	\$161.	\$147.
Accumulated net returns, 1982-85					
with 83 & 84 harvest sale	\$630.	\$528.	\$ --	\$ --	\$458.
with 83 & 84 stored sale	533.	491.	517.	497.	--
HIGH PRICE OUTLOOK					
Market price or loan/bu.	\$ 2.90	\$ 2.90	2.55+2.90	\$ 2.90	\$ 2.50
Storage payment/bu.	.265	.265	--	--	--
Interest earned/bu.	.38	.35	.29	.087	.30
1982-83 Crop year returns					
Crop sale or loan	\$320.	\$320.	\$320.	\$358.	\$312.
Storage and interest	71.	68.	32.	11.	38.
1982-83 Crop year costs					
Corn crop cost	145.	145.	145.	161.	161.
Cover crop costs	2.	2.	2.	--	--
Loan interest paid	--	--	23.	--	--
Storage charge (cash)	2.	33.	2.	2.	--
Net returns per unit*	\$242	\$221	\$180	\$206	\$189
Accumulated net returns, 1982-85					
with 83 & 84 harvest sale	\$745	\$656	--	--	\$626.
with 83 & 84 stored sale	708.	619.	642.	668.	--

* Unit = 1 acre corn or .9 acre corn + .1 acre set aside

1. Participate in grain reserve program with farm storage in 1982 and either sell at harvest in 1983 and 1984 or rent commercial storage.
2. Participate in grain reserve program using commercial storage for reserve and sell at harvest in 1983 and 1984 or rent commercial storage.
3. Participate in 1982 loan program only and use farm storage each year.
4. Not participate in 1982 using farm storage in all years.
5. Not participate in 1982 and sell at harvest in all years.

Using prices consistent with a stored price equal to the loan level in summer of 1983 (Lo Price Outlook Table 2), the annual return for the 1982 corn crop per acre of corn and reduced acre and the accumulated 1982-85 return was greatest for the option-participate in the 1982 feed grain program and the grain reserve. Participate in grain reserve using commercial storage and selling subsequent crops at harvest was the next most profitable alternative. Non-participants received the least return.

Improved price outlook reduced the advantage for program participation. These assumed prices are higher than farmers can currently price 1982 crops and include a subsequent improvement of prices to a level above the \$3.25 trigger release price in 1985. Even so, the three year accumulated net returns over variable costs was the greatest for the option-participation in 1982 feed grain program and the grain reserve in farm storage. The net returns for the non-participant using farm storage was the next most profitable alternative. Participants using commercial storage and non-participants selling at harvest received the least net return.

SUMMARY

To complete the evaluation of program participation, consider not only differences in yields, prices received, variable costs, and cropping practices, but also such items as compliance provisions of reduced acre programs, the availability of grain storage, the amount of grain needed for livestock feeding, weather variability, and soil conservation needs related to the quality of land available for crops.

R. A. Hinton

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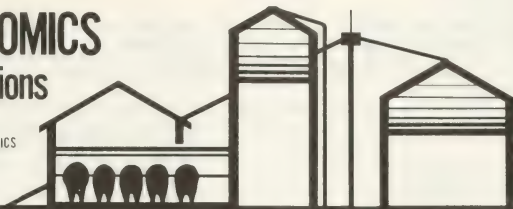
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April, 1982

Valuing Farm Input Handbook
Section 5 - Number 2

82-4/Cost of Growing Corn and Soybeans, 1981

In 1981, the total cost per acre for growing corn averaged \$408 for northern Illinois, \$397 for the central section, and \$345 for southern Illinois. The soybean costs per acre were \$325, \$317, and \$267, respectively. The total crop costs per acre in southern Illinois were lower because of lower land costs than elsewhere in the state. (See the accompanying table.) The total costs per bushel were \$2.72 to \$2.97 for corn and \$7.03 to \$7.37 for soybeans. The variable costs per acre increased 7-9% from 1980 in all areas for both corn and soybeans, while total costs increased 2-3%. Variations in total costs were related to yields and to the quality of land.

The above figures were obtained from Illinois Farm Business Records kept by farmers enrolled in Illinois FBFB Associations. The samples included only farms of more than 260 acres on the more productive and nearly level soils in each area of the state; also, ones without livestock. Farms located in 22 counties on or north of the Illinois River are included in the sample for northern Illinois. Farms from 36 counties below a line from about Mattoon to Alton are in the sample for southern Illinois. The remaining 44 counties make up the sample for central Illinois. The sample farms in northern Illinois averaged 576 tillable acres, 586 acres in the central section, and 688 acres in southern Illinois.

This summary includes some factors that farmers consider as costs of doing business--but which some other sole-proprietor businesses may not. These factors are not used as expense items on income tax returns. Examples would include the labor charge for work done by the farm operator himself, a rent charge for use of all the land, (both owned and rented) and an interest charge on equity in the inventories.

NON-LAND COSTS. For soybeans, the soil-fertility costs were allocated on the basis of P, K, and lime removals, with the residual cost allocated to corn. The seed, crop, chemical, and drying expenses also included some commercial drying and storage and the estimated value of home-raised seed.

The machinery repair, fuel, and hire costs were reduced for fuel-tax rebates and custom work. The labor costs included the cash value of hired labor, plus a charge for available unpaid labor at a rate of \$1,075 per month. No added charge was made for management. The building and storage costs used were for repairs and depreciation only. The non-land interest charge in 1981 was 14 percent on the average of half the inventory value of crops at the beginning and at the end of the year plus the full undepreciated value of machinery and buildings, plus half the total operating expenses. Overhead costs included insurance, utilities, the farm share of automobile expenses, and miscellaneous items.

LAND COSTS. These included the adjusted net rent, plus the real estate taxes paid. Net rent was represented as the average received by crop-share landlords as reported on record-keeping farms for the 5-year period of 1976-1980. Caution is needed in interpreting differences in land costs between areas. In the long run, the changes in the net rent residual return to landowners should tend to equalize the total costs of production between areas.

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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April, 1982

82-5/Farmland Prices Decline in the Corn Belt

The Economic Research Service of the USDA has, partly because of budgetary restrictions, omitted its usual November estimate of farmland values. Over the last twenty years, the USDA has been making two estimates of land values each year--one in February and one in November. Appraisers, realtors, farmers, attorneys, assessors, and Internal Revenue Service review officers have grown to rely on these estimates. (The index for 1977 to 1981 is given in Table 1.) But apparently, the USDA may now revert to using an annual estimate (as it did before 1961). The February estimate for 1982 was omitted, and the estimate for the year will probably be forthcoming in May or June.

Early information indicates that the USDA index for Illinois will decline 9 percent from February, 1981. Meanwhile, other reliable evidence corroborates this decline in land values. The Federal Reserve Bank of Chicago takes a quarterly survey of all rural bankers in its district. (The Chicago district includes the northern two-thirds of Illinois and the St. Louis district covers the rest of the state. The latter district, however, does not take a survey of land values.) The survey for the fourth quarter of 1981 (October 1 to December 31) showed a decline of 4 percent in Illinois farmland values. For 1981 as a whole, the survey also showed a 4 percent decline. In fact, prices were uniformly lower across the three major corn belt states in the fourth quarter (Table 2). The survey indicates that land values declined about 6 percent during the fourth quarter of 1981 in the cash corn and soybean production areas.

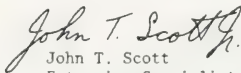
Based on reports from realtors, attorneys, auctioneers, and farmers, it appears that the land market has further deteriorated since the beginning of 1982. The Chicago Federal Reserve survey for the first quarter of 1982 is now complete and, while not yet published, again indicates a 4 percent decline in Illinois. In September, 1981, my comments in *Farm Economics Facts and Opinions* (81-13) suggested that if current economic conditions persisted, we could expect a 10 to 20 percent decline in farmland values. On February 19, 1982, my "ad hoc" survey of those attending the annual meeting of the Illinois Society of Farm Managers and Rural Appraisers in Danville showed that land prices in Illinois had indeed gone down--12-1/2 percent since the previous year.

The real estate market is always imperfect. Real estate, which is a relatively liquid asset when prices are rising, can become a very illiquid asset when prices decline. It is not like a commodity that is needed for consumption and must be purchased within a particular time period. Farmland is not consumed and will always exist (assuming proper conservation practices). Thus a prudent potential buyer who sees prices declining is under no compulsion to buy and can wait for

even lower prices. Likewise, since most land is in relatively strong financial hands, most potential sellers are under no compulsion to sell and can wait for prices that will be more favorable to them.

At present we have what economists call a discontinuity in the market--the supply and demand curves do not cross. The price perceptions of potential sellers are influenced by prices of the last two or three years. Potential buyers are influenced by their perception of the low relative returns on land, high debt service costs, and declining prices. Owners are not, thus far at least, willing to accept the lower prices that potential buyers are willing to offer. So like a great ship without wind for its sails, the land market is inactive. But new winds always arise, although the time of their reappearance and their direction and strength cannot often be predicted.

In the long run, we still expect a strong demand for agricultural products because our studies show that this demand will be somewhat greater than for nonagricultural products and services. For those who want to invest in land, who have the cash down payment, and can work out the cash flow, the next year or two may be a good time to buy land.

A handwritten signature in cursive script that reads "John T. Scott". The signature is written in dark ink and is positioned above the printed name and title.

John T. Scott
Extension Specialist
Land Economics and Farm Management

Table 1. USDA Land Price Index for Illinois^a

Year	Month	Index	Index
		(1977 = 100)	(1976 = 100)
1977	Feb.	100	353
	Nov.		372
1978	Feb.	111	390
	Nov.		417
1979	Feb.	125	441
	Nov.		459
1980	Feb.	135	476
1981	Feb.	143	504
1982	Apr. ^b	130	459

^aFarm Real Estate Market Developments, Economics and Statistics Service, ERS.

^bPreliminary information.

Table 2. Percentage of Change in the Dollar Value of "Good" Farmland^a

Time period	Percentage of change from previous quarter		
	Illinois	Iowa	Indiana
<u>1981</u>			
Apr. 1 to June 30	-1	+4	0
July 1 to Sep. 30	-1	+2	-1
Oct. 1 to Dec. 31	-4	-4	-4
Jan. 1 to Dec. 31	-4	+2	-5
<u>1982</u>			
Jan. 1 to Apr. 1	-4 ^b		

^aFrom the data of the Federal Reserve Bank of Chicago. Restricted to those parts of these states that are in the Chicago Federal Reserve District.

^bPreliminary information.



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



June, 1982

Valuing Farm Input Handbook
Section 12, No. 2

82-6/Losses Continue for Farrow-to-Finish Hog Producers in 1981

This analysis of farrow-to-finish hog producers is based on 174 specialized commercial hog farms in Illinois. These farms produced an average of 275 litters per farm.

Total cost of production in 1981 averaged \$48.59 per 100 pounds of pork produced (Table 1) compared with \$45.67 in 1980. Feed costs made up 62 percent of the total, or \$30.11. The 1980 feed costs averaged \$28.98. Nonfeed costs accounted for \$18.48, an increase of \$1.79 over 1980. With total returns averaging \$41.34 per 100 pounds of pork, the average producer in this group failed to cover total production costs by \$7.25 in 1981. The 1980 return above all costs was a negative \$5.61. The average producer in this study failed to cover total production costs in 1979, 1980, and 1981 for a cumulative loss of \$18.95 over the three-year period.

On the sample farms, more than 75 percent of the value of crop production was fed to hogs. This degree of intensity in hog production indicates a commitment of major resources to the enterprise. The producers in the sample group probably exercised a higher level of management and used more confinement-production facilities than the average hog producer in Illinois.

Total farm production costs were allocated to crops or to the hog enterprise. Hogs were the only livestock enterprise on the sample farms. Average grain-farm costs for 1981 were used to establish the crop costs, with the balance of the total farm costs allocated to the hog enterprise.

FEED COSTS. The average feed cost of \$30.11 per 100 pounds of pork produced included the value of 314 pounds of farm grains (the equivalent of 5.6 bushels of corn) and 88 pounds of commercial feeds. In the analysis, the price used for corn was \$2.98 per bushel and that used for commercial feeds was the average paid by the producers, \$15.61 per hundredweight.

NONFEED COSTS. The average of \$18.48 for nonfeed costs included maintenance costs and depreciation charges for buildings, machinery, and equipment--all of which totaled \$6.68 per 100 pounds of pork produced. The average labor cost of \$3.48 included charges for available unpaid labor and wages paid to hired labor, as reported by the farmers. The interest charge for all capital of \$5.68 included charges for investments in land, buildings, equipment, hogs, and feed inventories.

SIZE-OF-ENTERPRISE RELATIONSHIPS. The records for the hog enterprises reported in Table 1 were sorted by the number of litters produced. The group farrowing under

Table 1. *Costs and Returns for the Farrow-to-Finish Hog Enterprise, by the Size of the Enterprise, 1981*

	Average number of litters per year		
	All	Under 250	250 or more
Number of farms	174	98	76
Average per farm			
Number of litters	275	154	430
Returns per \$100 of feed fed	\$139	\$135	\$145
Pigs weaned per litter	7.5	7.4	7.6
Death loss: percent of weight produced	1.9	1.8	2.0
Pounds of feed per 100 pounds produced			
Farm grains	314	321	304
Commercial feeds	88	86	90
Total concentrates	402	407	394
Cost per 100 lb. of commercial feeds	\$ 15.61	\$ 15.99	\$ 15.11
Cost per 100 lb. of concentrates	\$ 7.51	\$ 7.54	\$ 7.48
<i>per 100 pounds of pork produced</i>			
Total returns ^a	\$ 41.34 (40.06)	\$ 40.79	\$ 42.05
Feed costs ^a	30.11 (28.98)	30.69	29.37
Return above feed costs ^a	\$ 11.23 (11.08)	\$ 10.10	\$ 12.68
Nonfeed costs			
Buildings	\$ 2.96	\$ 2.78	\$ 3.20
Machinery and equipment	3.72	3.73	3.71
Labor	3.48	3.67	3.24
Livestock expense	1.71	1.78	1.62
Taxes	.28	.26	.31
Interest charge on all capital	5.68	5.78	5.56
Insurance and overhead	.65	.65	.65
Total nonfeed costs ^a	\$ 18.48 (16.69)	\$ 18.65	\$ 18.29
Total all costs ^a	\$ 48.59 (45.67)	\$ 49.34	\$ 47.66
Return above all costs ^{a,b}	\$ -7.25 (-5.61)	\$ -8.55	\$ -5.61

^aFigures in parentheses are for 1980.^bNo charge was made for management.

250 litters for the year averaged 154 litters. The group farrowing 250 or more litters averaged 430 litters.

The total cost of production per 100 pounds of pork produced averaged \$1.68 less for the large enterprises than for the small ones. The most significant cost difference between the two groups of farms was in the average feed cost per 100 pounds of pork produced, which was \$1.32 lower for the large enterprises than for the small ones (\$30.69 compared with \$29.37). The better feed conversion and the lower price paid for commercial feeds contributed about equal amounts to the lower feed cost. Other production variables, such as the number of pigs weaned per litter and the rate of death loss, were not significantly different.

The difference between the two groups in nonfeed costs was only 36 cents per 100 pounds of pork produced. Building, machinery, and equipment costs in 1981 were about 6 percent higher for the large enterprises than for the small enterprises. These higher costs were offset by a lower labor cost of nearly an equal dollar amount, indicating the use of more labor-saving facilities on the farms with larger enterprises.

The returns above all costs averaged a negative \$8.55 per 100 pounds of pork produced for the small enterprises and a negative \$5.61 for the large ones, a difference of \$2.94. Marketing and income accounting practices accounted for \$1.26 of the difference. Other management practices such as the choice of building systems, method of transporting hogs to market, and on-farm versus off-farm systems for feed processing may have affected the individual cost items reported in Table 1. However, the return above all costs should accurately reflect the relative profitability of the two groups of hog enterprises.

LONG-RUN IMPLICATIONS. Producers should evaluate expected returns over more than one year before making new investments in hog-production facilities. The return above all costs except management for 1977 to 1981 averaged a negative \$1.87 per 100 pounds of pork produced for the small enterprises and a negative 11 cents for the large ones (Table 2). In three of the past five years, the returns have been negative for both groups. The difficult question confronting producers is whether the industry is moving into a period of narrower profit margins as compared with the more favorable long-run returns to the farrow-to-finish hog enterprise.

Table 2. Returns above All Costs, by Size of Enterprises, 1977 to 1981^a

	Average number of litters per year		
	All	Under 250	250 or more
	per 100 pounds of pork produced		
1977	\$ 3.61	\$ 3.14	\$ 4.67
1978	9.62	9.25	10.24
1979	-6.09	-6.34	- 5.67
1980	-5.61	-6.87	- 4.19
1981	-7.25	-8.55	- 5.61
Average, 1977 to 1981	\$-1.14	\$-1.87	\$- .11

^aNo charge was made for management.

A substantial profit margin is required to compensate for the risks and detailed management activities involved in hog production. Large-scale hog production in modern confinement facilities requires large capital investments. The future recovery of the capital is uncertain. The salvage value of confinement hog facilities is low.

Some hog producers in Illinois have lower production costs than those reported here. Opportunities to utilize fixed resources that have limited other uses may be available. In planning new hog-production investments, however, producers need to make a critical evaluation of available management ability and a careful projection of costs and returns.

Richard P. Kesler

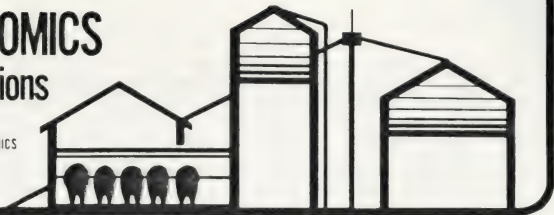
Richard P. Kesler, Extension Specialist, Farm Management



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



June, 1982

82-7/Farm and Family Sources and Uses of Dollars, 1978-1981, Illinois Farms

Noncapital expenses for family living averaged \$21,948 per farm operator family in 1981 within a group of 132 recordkeeping farms in central Illinois (see the table on page 2). This figure is 3.5 percent higher than the figure for 1980, and 21 percent higher than the one for 1978. Another \$3,964 was used to purchase capital items, such as the personal share of the family automobile, furniture, and household equipment. Thus, the grand total for living expenditures averaged \$25,912 for 1981 compared with \$23,452 for 1980 for a 10.6 percent increase.

How farm operator families use their funds may depend on the level of the net farm income and the priority of the expenditures. Net farm incomes have been dropping the past two years although the 1981-drop was not as much for the sample farms as the 1980 drop, which was caused by a severe drought. The two-year drop has resulted, however, in continued reductions in savings and in most cash operating expenses, excluding interest. Capital purchases for both living and farm items may have reached the bottom on these farms in 1980 since such purchases increased in 1981, but net new savings decreased by nearly two-thirds in 1981.

In 1981 the operators of the 132 farms in the survey averaged 41 years of age and 3.6 members per family, with the age of the oldest dependent child being nine. They farmed 590 tillable acres, of which 106 acres (18 percent) were owner-operated. They were cooperators in the Farm Business Farm Management (FBFM) Association, located primarily in central and south-central Illinois. They kept records so that all sources of funds, both farm and nonfarm, balanced with all uses of funds in a complete monthly cash-flow accounting system. On the average, these farms contained 85 more tillable acres than all of the recordkeeping farms in the state. Management was also considered to be slightly above average on the 132 farms.

The table shows the average living expenses per farm family for five categories for each year from 1978 to 1981. "Living expendables" included food, operating expenses, clothing, personal items, recreation, entertainment, education, and transportation. The value of farm-furnished meat (amounting to an estimated \$200 average per farm) and the use value of the house on the estimated 40 to 50 percent of the full-tenant-operated farms in this sample are not included since these data cover only cash outlays. The gross nonfarm taxable income of \$8,747 in 1981 was 34 percent of total living expenses. This income includes dividends on stock, interest on savings, income from other nonfarm investments, and income from off-farm work performed by the wife. Part of the higher interest paid was offset by increased interest income in 1981.

*Farm and Family Sources and Uses of Dollars, Average per Family, 1978 to 1981,
and Average Living Expenditures, 1981, High-Third and Low-Third Families*

	All records, average per farm				Family of 3 to 5, 1981	
	1981	1980	1979	1978	High-third	Low-third
Number in sample	132	178	206	157	30	30
Tillable acres farmed	590	602	596	599	710	466
Acres owned	106	120	140	136	139	67
Liabilities, January 1	\$170,376	\$154,467	\$164,604	(a)	\$260,471	\$121,426
Liabilities, December 31 . . .	188,411	176,889	204,714	(a)	277,208	125,567
Sources of dollars						
Nonfarm taxable income . . . \$	8,747	\$ 6,620	\$ 6,537	\$ 6,822	\$ 5,192	\$ 7,225
Money borrowed	110,019	101,424	134,584	92,001	147,523	75,875
Farm receipts	136,447	140,892	147,324	135,944	175,832	100,220
Use of dollars						
Interest paid	\$ 16,619	\$ 14,359	\$ 12,497	\$ 9,157	\$ 24,445	\$ 12,229
Cash operating expenses . . .	80,284	83,684	87,549	78,385	106,179	54,453
Capital farm purchases . . .	22,232	18,155	31,093	27,949	20,543	20,704
Payments on principle . . .	91,983	79,002	94,474	72,605	130,786	71,734
Income and social security taxes	6,008	6,130	8,425	8,946	5,697	3,318
Net new savings and investment	8,194	21,171	28,199	13,067	2,639	160
Nonfarm business expenses . .	3,981	3,003	2,733	3,220	2,113	3,135
Living expenses						
Contributions	\$ 1,136	\$ 1,142	\$ 1,075	\$ 1,068	\$ 1,446	\$ 537
Medical	2,221	2,219	1,973	1,814	2,399	1,818
Insurance, life and disability	1,863	1,651	2,345	1,697	2,733	1,243
Expendables	16,728	16,193	14,924	13,607	23,409	11,721
Total noncapital expenses	\$ 21,948	\$ 21,205	\$ 20,317	\$ 18,186	\$ 29,988	\$ 15,320
Capital	\$ 3,964	\$ 2,227	\$ 3,169	\$ 3,241	\$ 6,157	\$ 2,267
Total living expenses . . .	\$ 25,912	\$ 23,432	\$ 23,486	\$ 21,427	\$ 36,145	\$ 17,587
Total noncapital living expenses, percent change . .	3.5	4.3	11.7	4.2	...	...

^aData not available.

Source: 132 recordkeeping farms, FBFM, Central Illinois.

Based on this group of 132 farms, the most significant factor in 1981 was the apparent need of farm operators to reduce expenditures wherever possible to compensate for reduced farm receipts, increased costs for items purchased, and higher interest rates. To maintain operations, farm operators cut costs wherever possible, reduced their savings, and increased their use of borrowed money. The \$188,411 in total liabilities outstanding at the end of the year was 6.5 percent higher than one year earlier. Also in 1981, for the first time, interest expense exceeded all other farm operating expenses, including the previous high of fertilizer expense. Interest paid for both real estate and operating capital debt was 21 percent of the total cash operating expense compared with 17 percent in 1980 and 12 percent in 1978.

The records of farm families with three to five persons were sorted into high-third and low-third categories according to the noncapital living expenses. The total living expenses for the high-third group averaged \$36,145 compared with \$17,587 for the low-third group. The high-third group farmed 244 more acres than the other group and owned 20 percent of the land farmed; the low-third group owned only 14 percent of the land farmed. The larger farms with more land owned provided higher taxable incomes. The results were more income taxes paid, higher living expenses, higher payments on debt principal, and slightly more savings.

In 1981 the average operator in this sample borrowed \$186 during the year for each tillable acre farmed. This figure compares with \$154 in 1978 in the same sample. The low-third group, which included young farmers averaging 32 years of age, borrowed an average of \$163 for each tillable acre farmed. The business of farming is involving considerable amounts of borrowed capital in relation to annual operating expenses.

When continued inflation and high interest rates are combined with uncertain markets and crop production on highly specialized farms, it becomes important that more farmers learn how to balance and monitor their cash flows each month. Farmers who learn to do this will gain confidence in making financial management decisions that are timely and sound. For low equity operators, these decisions may mean the difference between success or failure. The data summarized in this study may serve as a guide in budgeting allowances for family living expenses.

D. F. Wilken

D.F. Wilken, Extension Specialist Farm Management



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA ILLINOIS 61801



August 1, 1982

Valuing Farm Input Handbook
Section 4 - No. 1

82-8/Guide for Adjusting Custom Rates and Machine Rental Rates for 1982-83

Custom field operation rates are charges made for the use of field equipment, the time of the operator, necessary mechanical power, other supplies furnished, such as tractor fuel, wire or twine for baling, and an allowance for risk and overhead. Rental rates are for the use of the power unit and the machine only. There are two methods of establishing the charge for a particular operation. One is the market rates charged. The other is the cost of performing the operation or providing the machine services.

CUSTOM RATE COST INDEX

In the absences of current market rates, index numbers of prices paid by farmers for selected classes of expenditures can be used to adjust historical market rates for increased costs. Index of prices paid by U.S. farmers for selected production items directly related to the costs of providing custom farm operations are presented in Table 1. The weightings of the four items for the calculated custom rate cost index are as follows: tractors and self-propelled machinery 30%; other machinery and implements 25%; fuel and energy 15%; and farm wage rates 30%. The base for each index is 1977. The data in the column -- percent change from previous year -- uses the previous year as the base. The custom rate cost index assumes custom rates are based on costs of performing operations and no change in the efficiency of performing the operation.

Table 1. CALCULATED CUSTOM RATE COST INDEX AND ANNUAL CHANGES, 1977-1982

Year	Index of Prices Paid by U.S. Farmers for Production Items 1977=100 ^a				Estimated custom rate cost index ^b	Percent change from previous year
	Tractors and self-propelled machinery	Other ma- chinery and implements	Fuels and energy	Wage rates		
1977	100	100	100	100	100.0	--
1978	109	108	104	107	107.4	7.4
1979	121	119	137	117	121.7	13.3
1980	136	132	188	126	139.8	14.9
1981	152	146	213	136	154.8	10.7
1982 ^c	162	162	210	148	166.5	6.6

^a Source: Agricultural Prices, SRS, USDA.

^b Tractors and self-propelled machinery weighted by 30%, other machinery and implements 25%, fuel and energy 15%, and wage rates 30%.

^c June 15 estimates and June to June change.

COSTS OF OWNING AND OPERATING POWER AND IMPLEMENTS

The cost of using replacement machines is another guide to establishing and adjusting custom rates. The short cut method of computing the direct use costs for individual power units and implements is illustrated by the example in the form on page two.

The direct use costs for typical sized machines at current replacement cost and at average performance levels are presented in Table 2. These direct use costs include depreciation, interest, insurance, repairs, fuel and labor. There has been no allowance for profits, management, overhead or risk in these calculations.

There are three direct use values presented in Table 2. The value in the first column covers all direct use costs of power, implement, fuel and labor. The data in the second and third columns are for situations where the power and equipment units are rented out. Costs for both the tractor and implement are included in the second column. The third column has the ownership and operating costs for the implement only.

METHOD OF COMPUTING DIRECT COSTS OF OPERATING POWER AND IMPLEMENTS
(+ Estimated return for management, overhead and risk)

	Power unit (tractor or self- propelled unit)	Implement	Total
1. Machine	<u>TRACTOR</u>	<u>Chisel Plow</u>	
2. Size	<u>180 HP</u>	<u>15 ft.</u>	
3. Purchase price	<u>\$65,360</u>	<u>\$3,740</u>	
4. Ownership and repair cost (see Table A)	<u>.0004</u>	<u>.0016</u>	
5. Hourly ownership and repair cost (3 x 4)	<u>\$26.14</u>	<u>\$5.98</u>	
6. Fuel and lubrication, cost per hour ^a	<u>\$14.74</u>	<u>\$ -</u>	
7. Total power and implement, cost per hour (5 + 6)	<u>\$40.88</u>	<u>\$5.98</u>	<u>= \$46.86</u>
8. Labor cost per machine-hour on the job ^b			<u>\$8.66</u>
9. Total costs per machine-hour on the job for operation ^c (7 + 8)			<u>\$55.52</u>
10. Units of work per machine-hour on the job (acres, bushels, tons, bales) ^c			<u>7.2</u> Units
11. Total cost per unit of work (9 ÷ 10)			<u>\$7.74</u>
		10% rate	25% rate
12. Adjustment for risk, time for moving from job, other overhead, and profit margin [line 11 x (10 to 25%)]		<u>\$</u>	<u>\$</u>
13. Estimated machine hire rate per unit of operation		<u>\$</u>	<u>\$</u>

a $\frac{180}{\text{PTO HP}} \times \begin{matrix} .069 \text{ for gasoline} \\ .0504 \text{ for diesel} \\ .0823 \text{ for LP gas} \end{matrix} \times \begin{matrix} .75 \text{ for light load} \\ 1.00 \text{ for ave. load} \\ 1.25 \text{ for heavy load} \end{matrix} \times \$1.30 = \$14.74$
price per gallon fuel cost per hour

b $\frac{8.25}{\text{wage rate}} \times \frac{1}{\text{no. of workers}} \times \begin{matrix} 1.05 \text{ for tillage operations} \\ 1.10 \text{ for harvesting operations} \\ 1.20 \text{ for planting, spraying} \end{matrix} = \$8.66$
Labor cost per machine hour

c $\frac{180}{\text{width in inches}} \times \frac{5.0}{\text{m.p.h. speed}} \times \frac{80}{\text{field efficiency}} \times .01 = 7.2$
acres per hour

Table A. Amount of Assumed Use, Assumed Ownership and Repair Costs Per Hour, Per Dollar of the List Price and Rates of Performance Coefficients to be Used in Estimating Costs of Operating Power and Implements

	Years of use (assumed)	Annual hours of use (assumed)	Cost of owner- ship and re- pair per hour, per dollar of list price	Speed (MPH)	Field- efficiency coefficient
Tractor	10	400	.0004	...	...
Basic combine	5	250	.0010	...	...
Corn head	5	150	.0016	3.0	.70
Grain head	5	100	.0023	3.0	.70
Tillage implements	10	100	.0016	5.0	.80
Rotary hoe	10	100	.0016	9.0	.85
Row cultivator	10	100	.0016	4.0	.75
Planter and grain drill	8	75	.0026	5.0	.60
Fertilizer equipment	8	75	.0027	5.0	.70
Spraying equipment	8	75	.0023	5.0	.60
Mower	10	100	.0018	5.0	.80
Mower conditioner, hay rake	10	100	.0016	5.0	.80
Forage harvester, blower	10	100	.0016	3.0	.70
Hay baler, forage wagon	10	100	.0015	4.0	.75
Grain wagon	10	100	.0014	...	...
Manure spreader	10	100	.0015	5.0	.70
Liquid Manure spreader	10	100	.0016	...	...

NOTE: Costs were based on 5, 8, or 10 years of depreciated life, an interest rate of 12 percent, insurance at 1/2 percent, and housing at 1 1/2 percent of the remaining value of the beginning of the year. The purchase price was assumed to be 90 percent of the manufacturer's list price, plus freight and the dealer's setup cost.

Table 2. - DIRECT COSTS OF MACHINE SERVICES (excluding Management, Overhead and Risk)
(Guide to Custom and Rental Rates for Farm Equipment) a/

Field Operation	Unit	Power, machine fuel and labor costs	Power and machine costs	Machine costs only
TILLAGE OPERATIONS				
Moldboard plowing	acre	\$13.00	\$ 8.00	\$ 3.25
Chiseling, 8"-10"	acre	7.75	4.50	1.00
Chiseling, 12"-18"	acre	10.00	6.00	1.75
Coulter chiseling	acre	10.00	6.00	2.00
Field cultivation	acre	5.00	2.75	1.00
Offset disking - reg.	acre	7.50	4.50	2.00
- deep	acre	10.50	7.00	3.25
Tandem disking	acre	5.75	3.50	1.75
Disking and applying insecticide and herbicide	acre	7.25	4.75	2.50
Packer mulching	acre	5.00	3.00	1.50
Stalk shredding	acre	6.00	3.50	1.25
Row cultivating	acre	6.00	3.50	1.25
Rotary hoeing	acre	1.75	1.00	.50
TILLING AND PLANTING				
Field cultivating and planting corn or soybeans	acre	\$12.00	\$ 9.00	\$ 6.75
Packer mulching and drilling soybeans	acre	11.25	8.25	6.00
PLANTING				
Planting corn or soybeans only	acre	\$ 8.50	\$ 6.50	\$ 5.25
Planting corn or soybeans & applying chemicals	acre	9.25	7.25	6.00
No till planting	acre	11.25	8.75	7.00
Drilling small grain	acre	8.25	5.25	3.75
Power till seeding	acre	11.25	8.00	6.00
Broadcast seeding	acre	1.50	.50	.15
APPLYING FERTILIZER				
Anhydrous ammonia	acre	\$ 4.75	\$ 3.25	\$ 1.75
Mixed dry fertilizer	acre	2.00	1.25	.70
SPRAYING (excluding materials)				
Field spraying	acre	\$ 3.00	\$ 1.75	\$.75
Fence row spraying	hour	27.50	----	----
Rope wick applying	acre	2.75	1.00	.20
HARVESTING GRAIN				
Combine soybeans or wheat	acre	\$23.50	\$----	\$19.50
Combine corn	acre	27.50	----	22.50
Combine and store	bu.	.30	----	----
Pick and store ear corn	acre	40.00	25.00	16.00
Haul grain	bu.	.08	.03	----
Dry grain	bu. point	.0225	----	.012

(This table is continued on the next page.)

Table 2. - DIRECT COSTS OF MACHINE SERVICES (excluding Management, Overhead and Risk)
(Guide to Custom and Rental Rates for Farm Equipment a/

Field Operation	Unit	Power, machine fuel and labor costs	Power and machine costs	Machine costs only
HARVESTING FORAGES				
Mowing hay	acre	\$ 4.75	\$ 2.25	\$ 1.00
Mow, condition, windrow	acre	8.00	5.00	3.00
Raking hay	acre	4.50	2.25	1.00
Baling sq. bales - wire tie	bale	.31	.13	.07
-twine tie	bale	.22	.11	.05
Baling large round bales	bale	4.50	2.50	1.50
Stacking (1 1/2 tons)	stack	6.75	4.25	2.25
Stacking and moving	stack	8.75	5.25	2.50
Field chop only - corn				
silage - 2 row chopper	hour	45.00	31.00	20.00
	ton	2.60	1.75	1.10
Silo filling with 2 row				
chopper wagons & blowers	hour	82.50	----	----
	ton	4.60	----	----

a/ Adapted from Computation of Costs of Performing Farm Operations, Pricing and Valuing Farm Input Handbook - Section 4 - No. 3.

The estimated costs of using machines and changes in custom rate index are starting points for establishing a custom rate for a particular situation. The supply and demand of machinery and adverse field and weather conditions alter the appropriate custom rate from case to case.

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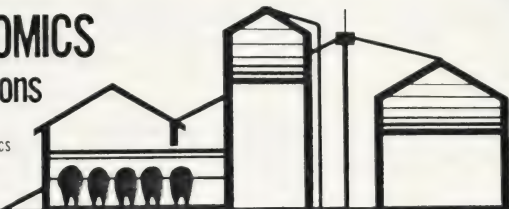
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



REISSUE

October, 1982

82-9/Update on Illinois Farmland Assessments: A Glimpse of the Future

INTRODUCTION

In August, 1981, an amendment to the Illinois Farmland Assessment Law was signed. The new law altered the way the state computed the assessed values for the soil productivity indexes that are certified to local assessors for their use in assessing individual farms.

The amendment called for assessments to be based on net returns to the land from farming, computed from the five-year average grain crop production costs (other than land) and cropping patterns, five-year average corn, soybean, wheat, and oat prices, and long-run average crop yields. The capitalization rate used to determine the agricultural economic value of farmland is specified as the five-year average of the Federal Land Bank's farmland mortgage interest rate on new loans. Assessed values are one-third of the land's agricultural economic or use value. Assessments for 1981 were based on data from 1975 to 1979, 1982 assessments on data from 1976 to 1980, 1983 assessments on data from 1977 to 1981, and so on.

Since the law went into effect, farms were assessed for 1981 (taxes payable in 1982) by a phase-in procedure that employed a farmland factor and for 1982, using the certified soil productivity index values issued to local assessors by the Department of Revenue. Beginning in May, 1982, the 1983 certified soil productivity index values issued by the Department of Revenue were reviewed by county farmland assessment review committees before being employed by local officials to determine 1983 assessments. The initial 1983 assessments will be set on January 1.

To prevent substantial changes in assessments because of the new procedure, a \$30-per-acre limit on the movement in assessed valuations of individual farms was included in the law. The limit applies to movements up or down in the 1981 assessments and *only* to upward movements in 1982, 1983, and 1984 assessments.

The Illinois farmland use-value assessment program has several advantages over similar programs adopted in other states. First, the program is unique in that it determines the production costs that are used in the computation of assessments, using data from a number of sources. Second, since the state does the initial computations for each soil productivity rating, there is considerable uniformity in the assessment of similar lands.

Finally, the operations of the review committees at the county level make it possible to achieve equitable assessments through review and possibly by altering the state certified soil productivity index assessed values so that they more accurately reflect local, unique circumstances.

IMPACT

The impact of the 1981 amendment on average farmland assessments has varied from county to county because past approaches have not been consistent. One indication of the impacts is given on the map in Figure 1, which shows the estimated county average farmland assessments for 1982.

In several counties, the estimates of 1982 average farmland assessments were less than the 1981 averages. Also, a number of 1982 averages were subject to the \$30-per-acre limit. However, because of this \$30 limit, many of the values in Figure 1 are thought to be an overestimate of actual 1982 average assessments. Therefore, the 38 counties shown here as having 1982 average assessments below the 1981 average comprise the minimum number of counties likely to experience a drop in average farmland assessments between these years.

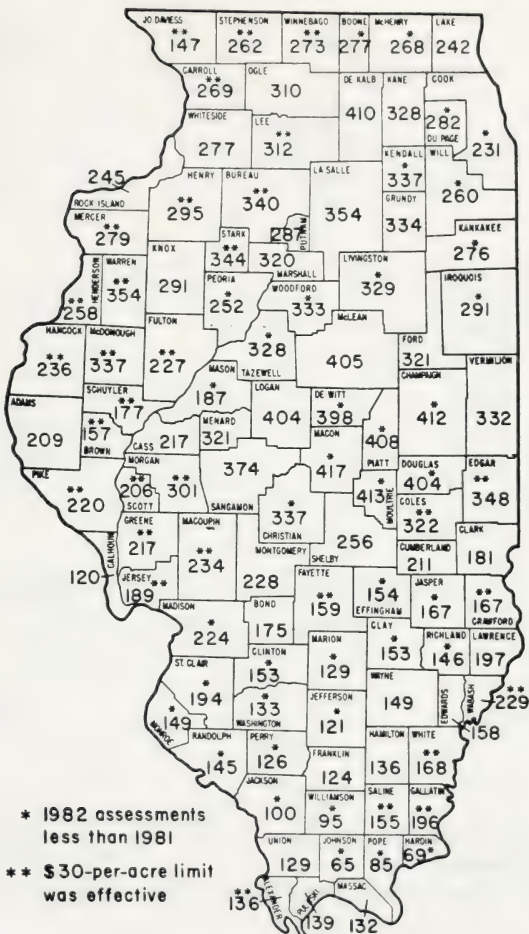
THE FUTURE

From the three years of assessment data, one can gauge the direction in which Illinois farmland assessments are heading. Figure 2 traces the movement of the five-year average prices for corn and soybeans used in computing 1981-through-1983 assessments, with an estimate for 1984 assessments. The 1984 assessments, of course, will be based on data averaged over 1978-82. As shown, the five-year average soybean price is expected to decline from 1983 to 1984, whereas the average corn price is expected to continue increasing. These estimates are based on prices covering the first six months of 1982 and are probably optimistic. However, for the five-year average corn price (used to compute 1984 assessments) to fall below the average price used for 1983 assessments, the 1982 price received by Illinois farmers would have to average less than \$1.98 per bushel. The 1984 capitalization rate as shown in Figure 3 is expected to be above the 1983 rate. It is not certain how close this rate will be to 11 percent, but it is expected to be above 10.7 percent.

Figure 4 shows the nonland production costs used to compute soil productivity index values in assessment years 1981, 1982, and 1983 for average management indexes 60 through 130. The impact of inflation on the five-year average costs is quite evident. For example, the production costs of farming a soil with an average management index of 100 increased 5 percent from 1981 to 1982, and about 8 percent from 1982 to 1983. If this trend in production costs continues, 1984 costs for a 100-indexed soil will be about \$226 per acre.

The combined influence of higher costs, generally higher prices, and a higher capitalization rate are reflected in the per-acre assessments shown in Figure 5. The per-acre assessment for a 100-indexed soil, for example, fell 2 percent from 1981 to 1982 and 11 percent from 1982 to 1983 when commodity prices used in the assessment computations (shown earlier) were increasing.

The weakening of commodity prices, along with continued inflationary pressure on production expenses and the expected increase in the capitalization rate, point to a continuing decline in farmland assessments in Illinois. This decline, as has been demonstrated, is directly linked to the weak economic conditions of Illinois



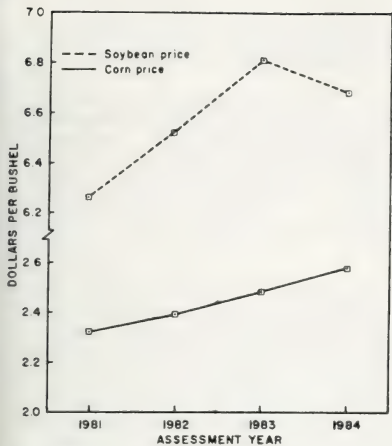


Figure 2. Average Prices: Assessment Years 1981-83, with 1984 Estimate.

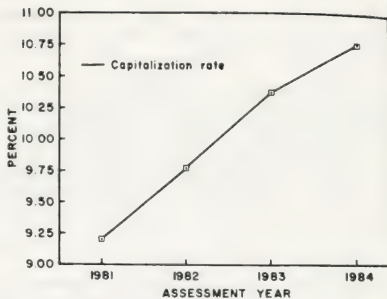


Figure 3. Capitalization Rate: Assessment Years 1981-83, with 1984 Estimate.

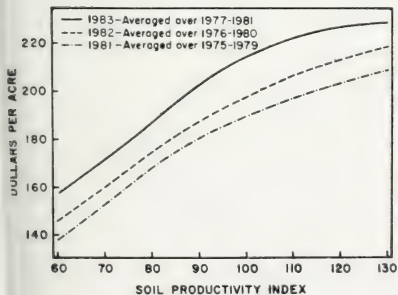


Figure 4. Nonland Production Costs: 1981-83 Assessments.

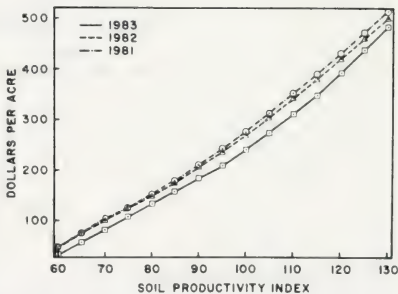


Figure 5. Assessed Values, 1981-83.

agriculture. The average decline in assessments across soil productivity indexes between 1982 and 1983 is comparable to the 9 percent drop from 1981 to 1982 in the Illinois farmland values reported by USDA.

Evidently, the assessment system is operating as its supporters intended, and farmland assessments thus reflect reasonably current economic conditions in agriculture. The averaging of economic data has reduced the impact of extreme annual economic conditions on assessments. This fact is important both for landowners and local governments. Landowners can make reasonable estimates of their future property tax liabilities, and local governments are provided with a reasonably stable tax base.

IMPLICATIONS

The implications of this review of Illinois farmland assessments are, first, that the level and change in the property tax base represented by farmland is now directly linked to the economic conditions of Illinois agriculture. Weak commodity prices, inflationary production expenses, and high interest rates are leading to lower farmland assessments. If lower assessments cause property taxes to decline, current farm income will be favorably affected. A second implication, however, is that reduced farmland assessments will place pressure on the budgets of rural local governments, especially schools, that rely on property taxes to finance services. Third, because of the method of determining and distributing state school aid, (a) lower aggregate farmland assessments require more state funds to "fully fund" the state school aid formula, and (b) state aid is not likely to relieve those rural school districts under financial stress. Recently, fewer not more state dollars have been available to support local schools. These implications suggest tough public policy choices may have to be made in the near future at both the state and local levels of government in Illinois.

David L. Chicoine

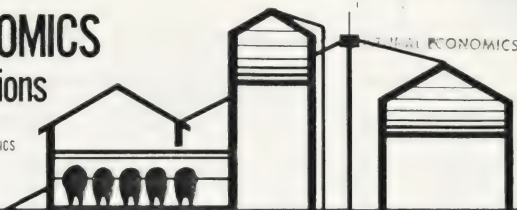
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1982

Valuing Farm Input Handbook
Section 6

82-10/Investment, Ownership, and Energy Costs of New Bin Storage and of Hot Air Drying Facilities for Corn, 1982

The costs of storing and drying grain are of primary concern to those farmers considering: (1) the construction of new grain facilities; (2) the use of commercial grain facilities; or (3) the leasing of facilities from other farmers or landlords. These costs include the ownership and operating costs of facilities; the relative shrink resulting from using the different systems; the invisible shrink; the weather, insect, price, and loss-of-quality risk; and the interest charge on the stored grain.

This report deals with the ownership and operating costs of new storage bins and hot air drying facilities for corn. All of the systems are capable of producing quality, conditioned grain. The differences lie in the relative ownership and operating costs and the managerial abilities of the operators required by the different drying systems.

The farmer must consider initial costs for both storage and drying. Storage costs cover the price paid for erecting the structure, for the bin, hatches, ladders, concrete, grain spreader, aeration floor and ducts, aeration fans and motor, and for unloading equipment. Drying costs cover the cost of the automatic dryer, the continuous flow dryer, the heater and fan of an in-bin dryer, or the heater, fan, and stirring device of a bin-stir dryer. The bin required for in-bin drying or bin-stir drying is considered a storage bin, and when storage aeration fans are replaced by the drying equipment, the cost of this drying equipment is reduced.

Annual ownership costs include depreciation at 5 percent for bins and 10 percent for drying and handling equipment; interest cost at an annual rate of 6 percent of the new investment cost; taxes and insurance at 1 percent of the new investment cost; and repair costs, figured at 1 percent of the new bin costs and 3 percent of the new equipment cost. Annual ownership costs for bins are 13 percent of the total investment; for drying and handling equipment, costs are 20 percent of the total. Total investment costs for storage and drying equipment for the different drying systems are summarized in Table 1.

Table 1. Investment Costs for Corn Storage Bins and Drying Facilities for Selected Systems in 1982

System	Capacity in bushels				
	10,000	25,000	50,000	75,000	100,000
Batch-in-bin drying					
Storage	\$16,200	\$33,200	\$61,400	\$84,300	\$102,500
Drying	3,710	3,710	7,420	7,420	7,420
Stir-drying					
Storage	16,200	33,200	58,000	80,500	94,500
Drying	8,880	8,880	8,880	8,380	8,880
Automatic batch drying					
Storage	13,000	24,500	45,200	68,400	86,900
Drying	15,300	15,300	19,400	25,500	25,500
Continuous flow-drying					
Storage	13,000	24,500	45,200	68,400	86,900
Drying	25,800	25,800	32,700	32,700	32,700

Auxiliary equipment listed in the annual costs of the selected systems include transport augers for moving grain from the dryer unit or bin and from the dryer unit to the storage bin, and moisture testing and sampling equipment. The electric energy requirements for augering grain for drying and storage, and for moving from storage were estimated at about 0.075 kilowatts per bushel. This energy use includes the aeration of grain in storage to maintain quality.

The energy costs in this analysis refer to L.P. gas and electricity. Table 2 indicates the estimated gallons of L.P. gas and kilowatts of electricity per point of moisture removed by a specific type of drying system. The rates used for computing costs were 71 cents per gallon for L.P. gas and 6 cents per kilowatt of electricity.

Table 2. Estimated Energy Used to Remove One Point of Moisture from One Bushel of Corn

Type of dryer	L.P. Gas (gallons)	Electricity (kilowatts)
Batch-in-bin dryer	0.0165	0.0150
Batch-in-bin stir dryer	0.0165	0.0113
Automatic batch dryer	0.0210	0.0106
Continuous flow dryer	0.0165	0.0106
Low temperature dryer (no heater)	...	0.2270
Low temperature dryer (heater with 3-degree rise in temperature)	...	0.2910

Note: The rates used in developing energy costs were 71¢ per gallon for L.P. gas and 6¢ per kilowatt for electricity.

The amount of moisture removed from one bushel of corn dried to 15.5 percent moisture is given in Table 3. Costs are computed on a dry bushel basis, because corn is sold on the dry basis of 56 pounds with 15.5 percent moisture, and storage facility capacities are stated on a dry bushel basis.

Table 3. Points of Moisture Removed from One Bushel of Corn Dried to 15.5 Percent Moisture on Wet Bushel and Dry Bushel Basis

Percentage of moisture content	Points of moisture removed	
	Wet bushels	Dry bushels
15.5	0	0
16.0	0.5	0.59
17.0	1.5	1.80
18.0	2.5	3.05
19.0	3.5	4.32
20.0	4.5	5.62
21.0	5.5	6.96
22.0	6.5	8.33
23.0	7.5	9.73
24.0	8.5	11.18
25.0	9.5	12.66
26.0	10.5	14.20

Note: 1 point of moisture equals 0.56 pounds of water. If corn is dried to 14 percent rather than 15.5 percent, add 1.75 points of moisture to the figures in the dry bushels column.

Energy costs are computed in the following manner:

$$C_e = [(Q_g \times P_g) + (Q_k \times P_k)] \times M_d$$

When: C_e = cost of energy to dry 1 bushel of corn

Q_g = gallons of L.P. gas to remove 1 point of moisture (Table 2)

P_g = price of a gallon of L.P. gas. (footnote, Table 2)

Q_k = kilowatts to remove 1 point of moisture (Table 2)

P_k = price of one kilowatt

M_d = points of moisture removed from 1 bushel of corn dried to 56 pounds with 15.5 percent moisture

For example, if 22 percent corn is dried in a batch-in-bin dryer, then the energy cost is figured as follows:

$$C_e = [(0.0165 \times 71¢) + (0.015 \times 6¢)] \times 8.33$$

$$[0.01172 + 0.0009] \times 8.33$$

$$0.1262 \times 8.33$$

$$C_e = 10.5¢ \text{ (Drying L.P. gas and electricity cost for batch-in-bin dryer in Table 4.)}$$

When there are 25,000 to 100,000 bushels of corn to harvest; when the harvest period is from 18 to 38 days, and the moisture content is 24 to 29 percent at the beginning of harvest, corn will have an average moisture content of 22 percent for the harvest period.

Table 4 summarizes the annual ownership and energy costs of storing and drying grain by four hot air drying systems.

Table 4. Annual Ownership and Energy Costs per Dry Bushel of Corn with Hot Air Drying Systems and Bin Storage for Selected Quantities, 1962

Costs	Bushels annually				
	10,000	25,000	50,000	75,000	100,000
Batch-in-bin					
Storage: ownership	21.1¢	17.3¢	16.0¢	14.6¢	13.3¢
Auxiliary: ownership	4.8	3.6	3.2	2.1	1.6
electricity	0.5	0.5	0.5	0.5	0.5
Drying: ownership	7.4	3.0	3.0	2.0	1.5
L.P. gas + electricity	10.5	10.5	10.5	10.5	10.5
(22% to 15.5%)					
TOTAL	44.3	34.9	33.2	29.7	27.4
Batch-in-bin stir drying					
Storage: ownership	21.1	17.3	15.1	14.0	12.3
Auxiliary: ownership	4.8	3.6	3.2	2.1	1.6
electricity	0.5	0.5	0.5	0.5	0.5
Drying: ownership	17.8	7.1	3.6	2.4	1.8
L.P. gas + electricity	10.4	10.4	10.4	10.4	10.4
(22% to 15.5%)					
TOTAL	54.6	38.9	32.8	29.4	26.6
Automatic batch drying					
Storage: ownership	16.9	12.7	11.8	11.8	11.3
Auxiliary: ownership	9.4	3.8	2.1	2.1	1.6
electricity	0.5	0.5	0.5	0.5	0.5
Drying: ownership	30.6	12.2	7.8	6.8	5.1
L.P. gas + electricity	12.9	12.9	12.9	12.9	12.9
(22% to 15.5%)					
TOTAL	70.3	42.1	35.1	34.1	31.4
Continuous flow drying					
Storage: ownership	16.9	12.7	11.8	11.8	11.3
Auxiliary: ownership	9.4	3.8	2.1	2.1	1.6
electricity	0.5	0.5	0.5	0.5	0.5
Drying: ownership	51.6	20.6	13.1	8.7	6.5
L.P. gas + electricity	10.3	10.3	10.3	10.3	10.3
(22% to 15.5%)					
TOTAL	88.7	47.9	37.8	33.4	30.2

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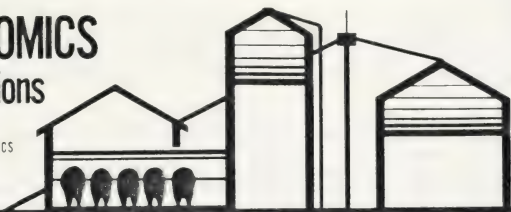
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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1982

82-11/Agricultural Outlook: The Land Price Situation

The land market is dead in the water! Few sales are occurring. Those that do occur are mostly either under financial duress, estate settlements, or contract sales with interest rates below market mortgage rates (which amounts to a price reduction). Others who would be sellers under normal circumstances remember the peak prices of 1980 and are unwilling to accept the substantially lower prices being offered by would-be buyers. In such a situation, the price level is very difficult to estimate.

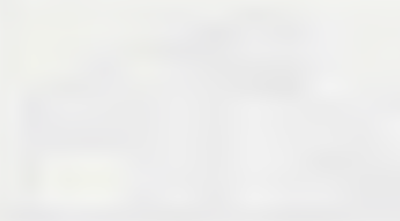
When land prices are rising, everyone wants to "get in on a good thing." When land prices are falling, no prudent buyer wants to buy because he thinks he can purchase later at a lower price. It may be better for a buyer to wait a little too long to buy than to jump in too soon.

In last year's *Farm Economics Facts and Opinions* 81-13/Land Price Situation (September, 1981), I said, "Land prices could decline 10 percent and possibly 20 percent or more," if there were no improvement in the factors listed below. Land prices have declined about as predicted: The latest statistical surveys indicate Illinois is down 14 percent to 16 percent, Indiana down 19 percent, and Iowa down 8 percent.

(1) Interest rates did continue to climb last fall, but mortgage rates did not reach as high as I expected. The rate reached about 14.4 percent and will probably not decline more than 2 or 3 percent for another year or so. The rate would still be above the level which existed in 1979.

(2) Net farm income significantly declined from 1980 to 1981 and even with (we might say partly because of) bumper crops, farm income from crop production is expected to decline somewhat further in 1982. The new farm program is likely to stabilize or increase incomes somewhat in 1983 from the 1982 level. Low farm income continues to affect land prices negatively. The farm income is just not there to make mortgage payments possible except at substantially lower land prices. Off-farm income has to take up the slack. But with unemployment at 10 percent in the general economy, a farmer or his spouse, unless already employed outside the farm, may experience difficulties in finding an off-farm job.

(3) Terms are being improved by sellers, but probably not enough to compensate for all the other negative factors. A nominal price of \$3,000 per acre with 10 percent down on a contract amortized at 10 percent interest for 20 years is the same as a cash price of \$2,435 per acre (assuming a market interest rate of 14.4 percent). This sort of concession is not uncommon and it means a de facto reduction in price of 19 percent. These better terms tend to stabilize the "nominal" price.



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(4) Expectations of future inflation at double-digit figures have been greatly dampened if not completely turned around. From 1977 to 1981, it can be shown on the basis of land returns and interest rates that about half the price of land was governed by the inflationary expectations for both agricultural rents and rising land values.

(5) Since 1980, exchange rates have continued to move against the foreign buyer, making land here (even at lower prices) more dear to the foreigner in his money. This is either good or bad depending on your viewpoint. It also affects our exports and grain prices. The French franc has declined 65 percent against the dollar, the German mark 38 percent, the British pound 32 percent, and the Japanese yen 13 percent.

We have had two land price peaks in this century. One occurred in 1920, the second in 1980 or 1981. From 1920 to 1929, land values in the Midwest generally declined about 4 percent per year, a relatively slow but continuous decline over a nine-year period. From 1929 to 1933, prices declined about 16 percent per year for a total of 44 percent and then began a long ascent--very slow at first, then at moderate rates from 1950 to 1970 and at accelerated rates in the late 70s. Land prices did not reach their 1920 peak again until 1950. Figure 1 shows the net rent on high quality land and the payment needed on new mortgages (at land prices and interest rates of the year shown) to amortize the price of land. Clearly something had to give! After 1975, the mortgage payments required were getting too far out of line with land income. This divergence in financing could not continue to widen indefinitely. Either farm income had to rise and interest had to come down or land prices would come down. And it was land prices that gave way.

If we should return to the relationship between land rent and mortgage payments that existed from 1950 through the early 60s, a substantial adjustment in land values and interest rates would still have to be made. Assuming long-term interest rates decline by 3 percent and land incomes stumble along at the expected 1982-83 level, the potential exists for a still further decline of as much as 20 to 25 percent in land values. Every coin has two sides. Lower land prices may be good or bad depending on whether you want to buy or sell. Price decline is very serious for farmers who have purchased land with a low down payment in the last three or four years and for lenders whose mortgage balances could be more than the land is worth on a current basis. Some land bought on contract could revert to the seller without certain concessions on the part of the seller. In the short run, the farm program limiting production of corn and soybeans will tend to stabilize farmland prices in the Midwest near their present levels. But it is unlikely there will be any rebound for 2 or 3 years.

Although most of the short run crop outlook is negative, the income from livestock is good. Also, we must remember that over the long run, world populations are increasing and the demand for food will continue to rise. But future agricultural production increases will be slower, making a tighter supply-demand situation. Over half the increase in production from 1950 to 1980 came from more intensive land use--by increasing cropland for corn and soybeans from 50 percent to 85 percent. Therefore, even if yields continue to increase according to the current trend, the rate of supply increase will eventually slow down because little additional high quality acreage is available. There also are biologic and economic limits to yield levels. Thus over the long run the outlook for agriculture is bright.

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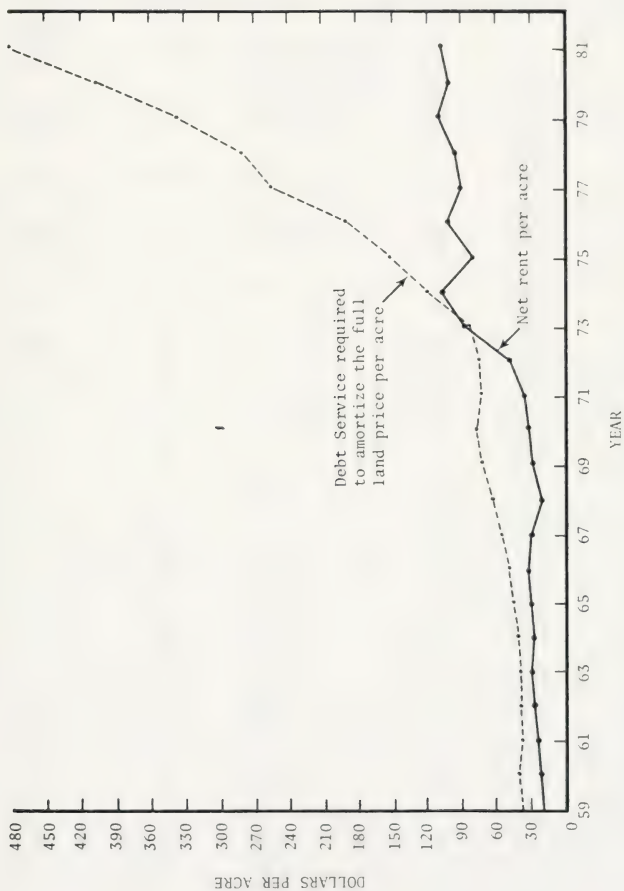


Figure 1. Net return on land with basic soil productivity rating 85-100, all tillable, and amortization of full land price.



-4-

*Index Numbers of Illinois Farmland Values Taken from USDA
Farm Real Estate Market Developments*

Date		Index numbers (1967=100)	Date	Index numbers (1967=100)	Date	Index numbers (1967=100)
	<u>1977=100</u>					
1982 Apr.	131	465	1967 Nov.	104	1942	23
			Mar.	100	1941	20
1981 Nov.					1940	20
Feb.	143	504	1966 Nov.	101		
			Mar.	94	1939	19
1980 Nov.					1938	19
Feb.	135	476	1965 Nov.	88	1937	18
			Mar.	84		
1979 Nov.		459			1936	17
Feb.	125	441	1964 Nov.	82	1935	16
			Mar.	78	1934	15
1978 Nov.		417				
Feb.	111	390	1963 Nov.	77	1933	14
			Mar.	75	1932	17
1977 Nov.		372			1931	21
Feb.	100	353	1962 Nov.	73		
			Mar.	71	1930	24
1976 Nov.		328			1929	25
Feb.		260	1961 Nov.	70	1928	25
			Mar.	69		
1975 Nov.		233			1927	26
Mar.		209	1960	71	1926	29
			1959	71	1925	30
1974 Nov.		194	1958	66		
Mar.		173			1924	30
			1957	65	1923	32
1973 Nov.		150	1956	60	1922	33
Mar.		129	1955	57		
					1921	40
1972 Nov.		124	1954	56	1920	42
Mar.		116	1953	55	1919	34
			1952	54		
1971 Nov.		110			1918	31
Mar.		108	1951	50	1917	29
			1950	42	1916	27
1970 Nov.		107	1949	41		
Mar.		107			1915	27
			1948	39	1914	27
1969 Nov.		108	1947	37	1913	26
Mar.		109	1946	32		
					1912	25
1968 Nov.		106	1945	29		
Mar.		104	1944	27		
			1943	24		

The ANNUAL index numbers from 1912 through 1960 are the March figures. To extend the annual series, simply use the March index to represent the year up through 1975. In 1976 the first index was taken as of February 1. November has been dropped by USDA.

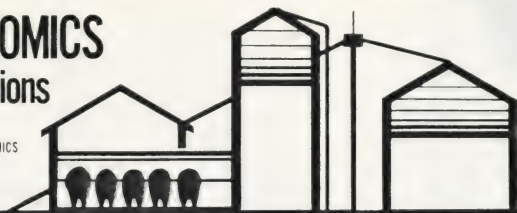




FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1982

Valuing Farm Input Handbook
Section 6

82-12/Low Temperature and Solar Drying Facilities and New Bin Storage: Investment, Ownership, and Energy Costs for Corn in 1982

Low temperature drying is a process of slow drying with natural air or with air heated only a few degrees. Grain is dried and stored in the same bin, so the process may be referred to as in-bin drying. As energy costs continue to rise, low temperature drying and solar drying are being considered as replacements for hot air drying systems.

Investment, ownership, and energy costs of low temperature drying (with and without supplemental electric heat) and four solar heat drying systems are compared in this report. Two sizes of systems, 10,000-bushel and 25,000-bushel, were compared. Storage bin sizes, fan size, heater unit size, and solar collector types and sizes are listed in Table 1. Units above 25,000 bushels are not more economical, so the cost per bushel for large size units would be about the same per bushel as for 25,000-bushel units.

The recommended full-bin airflow rate for fan selection for most of Illinois is 1.5 cubic feet per minute per bushel according to the *Low Temperature and Solar Grain Drying Handbook* published by the Midwest Plan Service. For comparison, we used one 20-horsepower centrifugal fan providing 1.6 cfm/bu. "controlled-filling" airflow rate in the 10,000-bushel bin and three 20-horsepower centrifugal fans providing about 2.0 cfm/bu. in the 25,000-bushel unit. The investment costs (Table 2) for storage, drying, and auxiliary facilities are the costs the farmer pays for the turnkey setup of facilities. Investment costs for the solar collector on the machine shed comprise the added costs of installing solar collectors on the roof and side of the building and the required air ducts. Investment costs of the solar unit of the roofless bin and solar shed include the solar shed. Investment costs of the solar collector on the wraparound include the cost of installing the wrap-around collector for two-thirds of the circumference times the height of the bin to the eaves, and the air ducts for the fan. Investment costs for the circular bin with portable panels cover the costs of two 12 ft. by 24 ft. panels and the air ducts to the bin.

Annual ownership costs, including depreciation, interest, taxes, insurance, and repair costs, are 13 percent of the total investment cost for all storage facilities and for solar units except the solar portable panels. Annual ownership costs are 20 percent of the investment costs for drying facilities, fans, and solar portable panels.

Low temperature drying requires about 0.227 kilowatt hours of electricity per point of moisture removed from a bushel of corn. Energy costs for solar drying are related to low temperature drying. The heat collected by the solar unit reduces the



Table 1. Low Temperature Drying Systems

Storage bins	10,000 bushels		25,000 bushels	
	33 ft. diameter, 16 ft. high	48 ft. diameter, 18 2/3 ft. high	3 - 20 H.P. (1.6 cfm/bu.)	3 - 30 in., 15 kW
Fans	1 - 20 H.P. (1.6 cfm/bu.)	3 - 20 H.P. (1.6 cfm/bu.)	3 - 20 H.P. (2.0 cfm/bu.)	3 - 30 in., 15 kW
Heaters (electric)	1 - 30 in., 15 kW			
Low temperature (no heat) drying				
Days to dry (21% to 15.5% moisture)	1 bin, 1 fan	1 bin, 3 fans	1 bin, 3 fans	22
Low temperature (electric heaters)				
Days to dry (21% to 15.5% moisture)	1 bin, 1 fan, 1 heater	1 bin, 3 fans, 3 heaters		17
Machine shed (60 ft. x 120 ft.)				
Solar collectors: 1/2 roof	1 bin, 1 fan	1 bin, 3 fans		
solar efficiency	3,794 sq. ft.	3,794 sq. ft.		
solar efficiency	40%	40%		
24-hour average temperature rise (Oct.-Nov.)	2,400 sq. ft.	2,400 sq. ft.		
Days to dry (21% to 15.5% moisture)	50%	50%		
	6° F.	2° F.		
	15	19		
Roofless storage bin enclosed in solar shed				
Solar collectors: 1/2 roof	1 bin, 1 fan, 36x40x16 shed	1 bin, 3 fans, 54x56x20 shed		
solar efficiency	759 sq. ft.	1,588 sq. ft.		
solar efficiency	40%	40%		
south side	640 sq. ft.	1,200 sq. ft.		
solar efficiency	50%	50%		
24-hour average temperature rise (Oct.-Nov.)	1.4° F.	0.9° F.		
Days to dry (21% to 15.5% moisture)	25	21		
Wraparound bin				
Solar collectors: Installed area	1 bin, 1 fan	1 bin, 3 fans		
Effective area	1,105 sq. ft.	1,876 sq. ft.		
solar efficiency	528 sq. ft.	896 sq. ft.		
24-hour average temperature rise (Oct.-Nov.)	70%	70%		
Days to dry (21% to 15.5% moisture)	0.8° F.	0.46° F.		
	26	21		
Circular bin with portable panels				
Solar collectors: 2 panels - 12 ft. x 24 ft.	1 bin, 1 fan			
solar efficiency	576 sq. ft.			
24-hour average temperature rise (Oct.-Nov.)	70%			
Days to dry (21% to 15.5% moisture)	1.04° F.			
	25			

Note: Fans with 1 cfm per bushel will dry from 21% moisture to 15.5% moisture in 44 days, 2 cfm per bushel in 22 days. Each 1-degree rise in temperature will reduce the drying time by 7.7 percent per day of fan time.



drying time about 7.7 percent for each degree of temperature increase. The reduction in drying time by the solar unit reduces the number of drying days and in turn reduces the electricity requirements. The 24-hour average temperature rise for the October-November drying period was computed for each solar drying unit from average solar radiation data given in Table 23h in the *Low Temperature and Solar Grain Drying Handbook* referred to earlier.

EXAMPLE. If the 10,000-bushel bin with the 60 ft. by 120 ft. machine shed has an average temperature rise of 6 degrees,

then $6^\circ \times 0.077 = 0.462$ reduction in number of days

$(1 - 0.462) \times 28$ (low temperature drying) = 15 days drying,

and 9.5¢ electricity drying cost for low temperature drying,

then $9.5¢ \times (1 - 0.462) = 5.1¢$ electricity cost for the machine

shed solar unit.

Table 3 summarizes the annual ownership and energy costs of low temperature and solar drying on the following page.

Table 2. *Investment Costs for Corn Storage Bins and Drying Facilities for Selected Systems in 1982*

System	Bushels capacity	
	10,000	25,000
Low temperature (ambient air)		
Storage	\$16,200	\$33,200
Fan	3,100	8,000
Low temperature (electric heater)		
Storage	16,200	33,200
Fan and heater	3,800	9,600
Machine shed (60 ft. x 120 ft. building)		
Storage	16,200	33,200
Solar collector	9,750	9,750
Fans	3,100	8,000
Roofless grain bin in solar building		
Storage	13,520	26,000
Solar unit	8,600	15,500
Fans	3,100	8,000
Circular bin (solar collector)		
Storage	16,200	33,200
Solar unit	2,971	4,800
Fans	3,100	8,000
Portable solar panels 2(12 ft. x 24 ft.)		
Storage	16,200	
Solar unit	3,440	
Fans	3,100	



Table 3. Annual Ownership and Energy Costs per Dry Bushel of Corn with Low Temperature, Solar Drying, and Bin Storage for Selected Quantities, 1982.

Costs	Bushels annually	
	10,000	25,000
Low temperature (no heat)		
Storage: ownership	21.14	17.34
Auxiliary: ownership	4.8	1.9
electricity	0.5	0.5
Drying: ownership	6.2	6.4
electricity	9.5	9.5
(21% to 15.5% moisture)		
Total:	42.1	35.6
Low temperature (electric heaters)		
Storage: ownership	21.1	17.3
Auxiliary: ownership	4.8	1.9
electricity	0.5	0.5
Drying: ownership	7.6	7.6
electricity	12.2	12.2
(21% to 15.5% moisture)		
Total:	46.2	39.5
Machine shed (60 ft. x 120 ft.), solar collector		
Storage: ownership	21.1	17.4
Solar: ownership	12.7	5.1
Fans: ownership	6.2	6.4
electricity	5.1	8.2
(21% to 15.5% moisture)		
Auxiliary: ownership	4.8	1.9
electricity	0.5	0.5
Total:	50.4	39.5
Roofless grain bin in solar building		
Storage: ownership	17.6	13.5
Solar: ownership	11.2	8.1
Fans: ownership	6.2	6.4
electricity	8.5	9.1
(21% to 15.5% moisture)		
Auxiliary: ownership	4.8	1.9
electricity	0.5	0.5
Total:	48.8	39.5
Circular bin (solar collector)		
Storage: ownership	21.1	17.4
Solar: ownership	3.9	2.5
Fans: ownership	6.2	6.4
electricity	8.8	8.6
(21% to 15.5% moisture)		
Auxiliary: ownership	4.8	1.9
electricity	0.5	0.5
Total:	45.3	37.3
Portable solar panels 2(12 ft. x 24 ft.)		
Storage: ownership	21.1	
Solar: ownership	6.9	
Fans: ownership	6.2	
electricity	8.5	
(21% to 15.5% moisture)		
Auxiliary: ownership	4.8	
electricity	0.5	
Total:	48.0	

Note: The estimated energy used to remove one point of moisture from one bushel of corn is 0.227 kilowatt hours of electricity for fan with no added heat, and 0.291 kilowatts for fan and heater with 3-degree temperature rise. A kilowatt hour of electricity was priced at 6 cents. When drying corn on a dry bushel basis from 21% to 15.5%, 6.96 points of moisture are removed.



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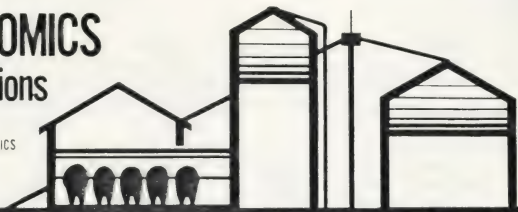
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



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Valuing Farm Input Handbook
Section 6, No. 4

82-13/Consideration in Crop Selection and Program Participation in 1983

Producers of feed grains and wheat need to make and finalize their cropping plans earlier this year. Sign-up for farm programs began October 1, 1982. Producers who sign up and take the advanced diversion and deficiency payment face substantial penalties for failing to follow through on program participation. These producers need to do a careful analysis of their alternatives in advance.

ACREAGE REDUCTION AND LAND DIVERSION PROGRAM PROVISIONS FOR FEED GRAINS AND WHEAT

To become eligible for land diversion payments, target price protection, price support loans and farmer owned reserve programs, feed grain and wheat farmers must comply with the acreage reduction and land diversion requirements. However, there is no cross compliance between crops nor offsetting compliance between farms required. And, the sign up period begins October 1, 1982 and ends March 31, 1983. A summary of the program provisions and payment rates are summarized in Table 1.

Table 1. Program Provisions and Payment Rates, 1983

	Corn	Sorghum	Barley	Oats	Wheat
Required acreage reduction (% of base)	10	10	10	10	15
Required land diversion (% of base)	10	10	10	10	5
Maximum planted acreage (% of base)	80	80	80	80	80
Diversion payment rate	\$1.50	\$1.50	\$1.00	\$.75	\$2.70
Target price	2.86	2.72	2.60	1.60	4.30
9 month loan price	2.65	2.52	2.16	1.36	3.65
Reserve loan price	NA	NA	NA	NA	4.00
Maximum deficiency payment rate	.21	.20	.44	.24	.65
Advance deficiency payment rate	.105	.10	.075	0	.325

Farm producers participating in 1983 feed grain program must reduce base feed grain acreage (corn and soybeans base and/or barley and oats base) by at least 20% -- 10% for acreage reduction and 10% for paid land diversion. This means the maximum acreage planted for harvest cannot exceed 80% of the base acreage for the farm. The feed grain bases will be the same as for the 1982

program, namely the higher of the 1981 acreage or the average of the 1980-81 acreage. Producers must devote to conservation uses an acreage equal to the land diversion requirement and 12.5% of the feed grain acreage planted for harvest. The later condition covers the case when the 1983 corn acreage is less than 80% of the base acreage.

Participating farmers in the wheat program must reduce their acreage of wheat planted for harvest by at least 20% -- 15% for reduced acreage requirement and 5% for paid land diversion. Acreage equal to land diversion and acreage reduction requirements of 18.75% of planted wheat acreage must be devoted to conservation uses.

Land diversion payments are based on the per bushel payment rate times the farm program yield times the acres diverted. The payment rates are \$1.50 per bushel for corn and \$2.70 for wheat.

Deficiency payments for crops are based on the difference between the target price and the five month average market price, but cannot exceed the difference between the target price and loan price. The maximum target price deficiency that could arise would be 21 cents for corn and 65 cents for wheat. These payment rates would be less if five month average prices exceed the loan rates.

Advance payments equal to one half of the diversion and one half of expected deficiency payments are available at sign up time to farmers who request them. A producer who accepts payment but who later does not comply with the program, must refund the amount of the advance payment with interest plus a 5 percentage point penalty.

Crop Production Plans

You can determine the effects of different crop combinations (land use) and of participation in the feed grain and wheat program on your farm by making estimates for each crop plan. To prepare a systematic analysis of alternatives, you will need to make three major judgments about what you expect in terms of yields, variable costs of production, and market prices. You will need also information from ASCS regarding your base acreages of feed grains and wheat, program yields and the specific requirements for participation in the 1983 feed grain and wheat programs on your farm.

Yields. Check your recent farm records. Base your projected yield on typical or average yields. Do not expect next year to be like the situation last year. Consider field-to-field variations that might change your choice of crops.

Costs. The typical costs of producing various crops are listed in Table 2. Use data in the table as a guide to estimating variable costs for the crops you expect to grow. The costs are divided into variable costs, other costs and land costs. The costs are for an owner operator; if you are a tenant, include only the portion of the cost items that you furnish.

The variable costs in Table 2 include production costs through harvest. If grain is stored, the variable costs of storing costs should be included.

Table 2. Estimated Costs Per Acre for Producing Crops, 1983

	Rotated corn (125 bu.)	Second- year corn (125 bu.)	Soybeans (40 bu.)	Wheat (54 bu.)	Oats (80 bu.)	Double- crop soybeans (20 bu.)	Set aside cover crop	Alfalfa hay (4.5 tons)
Variable costs:								
Seed.....	\$ 18	\$ 18	\$ 10	\$ 8	\$ 4	\$ 12	\$ 4	\$ 9
Pesticides....	16	24	17	1	1	28	..	6
Fertilizer								
N.....	30	40	..	19	14	..	..	..
P, K, Lime....	22	22	19	19	15	9	4	52
Mchy. rep. & fuel	32	32	27	19	17	15	7	30
Dry. fuels & rep.	15	15	..	..	..	..	..	..
Interest on opera- ting capital..	8	10	4	4	3	4	..	6
Total variable costs	\$141	\$161	\$ 77	\$ 70	\$ 54	\$ 68	\$ 15	\$103
Other costs:								
Mchy. depr. & int.	\$ 50	\$ 50	\$ 42	\$ 32	\$ 32	\$ 25	\$ 22	\$ 40
Labor.....	21	21	20	10	10	10	5	40
Management....	14	14	11	8	4	5	..	14
Storing (int.&bin)	27	27	16	13	13	8	..	34
Misc.....	15	15	15	15	15	8	8	15
Total other costs..	\$127	\$127	\$104	\$ 78	\$ 74	\$ 56	\$ 35	\$143
Land costs (cash rent).....	\$100	\$100	\$100	\$100	\$100	\$	\$100	\$100
Total all costs..	\$368	\$388	\$281	\$248	\$228	\$124	\$150	\$346

Market Prices. The next step is to estimate the prices you expect to receive for grain sold at harvest, placed under loan, or sold from storage. After that, determine the estimated gross returns from crops you plan to raise. The level of market prices will depend upon the extent of participation in feed grain and wheat programs and the growing conditions for the 1983 crop. Current futures market quotations may be used to project prices. These quotations suggest a price at harvest equal to the loan price less storage costs and 1984 stored prices equal to the loan price plus redemption interest cost.

Land diversion payments. The diversion payments per acre diverted are calculated by multiplying your farm program yield times payment rate (\$1.50 for corn, \$2.70 for wheat).

Deficiency payment. The deficiency payment per acre set aside for corn or wheat on your farm can be estimated by multiplying your farm program yield times planted acres and dividing the number acres set aside and multiplying that product times the deficiency payment rate. The maximum deficiency payment rate for corn is 21 cents and 65 cents for wheat. The deficiency payment rate will decline as the average five month average price rises above the loan and approaches the \$2.86 corn and \$4.30 wheat target prices.

Comparing Alternatives

As a guide to crop combinations that might optimize net crop returns in your farming operation, the contributions of individual crops and idled acres at varying yields are presented in Table 3. The net return over variable cost figures indicate, in general, the effects of acreage shifts without a complete budget of the whole cropping system. For instance, a comparison of the \$120 net return over variable costs from 125 bushel corn crop sold at harvest with the net return of \$143 for 40 bushel soybeans suggest shifting some acres from corn to soybeans, if you are not participating in the reduced acre program for corn.

Similarly, in evaluating possible participation in 1983 programs for feed grains and wheat, you should compare the expected return per idle acre in land diversion and set aside with the returns from other crops. For instance the land diversion net return over variable costs for 125 bushel corn program yield is \$167 per acre diverted. At maximum deficiency payment rate of 21 cents, the deficiency payment per set aside acre for 125 program yield totals \$210 and would net \$190 over variable costs. Both of these net returns per acre idled exceed the \$120 net return for 125 bushel corn sold at harvest time prices of \$2.25. This comparison suggests that participation in the feed grain program would improve net crop returns.

For producers who have storage and are able to place their crop under loan or sell from storage later in the year, the net value of the stored crop over variable costs including additional storage costs should be compared.

Table 3. Comparison of Crop Returns Per Acre, 1983

	Yield or payment base per acre	Estimated price or payment rate per unit	Crop returns per acre	Variable cost per acre ¹	Net returns over vari- able costs per acre
Corn (bu.)	100	\$2.25	\$225	\$148	\$ 77
	125	2.25	281	161	120
	150	2.25	338	176	162
	175	2.25	394	200	194
Corn (bu.) farm stored loan	100	\$2.65	\$265	\$153	\$112
	125	2.65	331	167	164
	150	2.65	398	184	214
	175	2.65	464	209	255
Land diversion for corn Program yield, bu. . .	100	\$1.50	\$150	\$ 20	\$130
	125	1.50	187	20	167
	150	1.50	225	20	205
Deficiency for corn Program yield, bu. . .	100 (800) ²	\$.21	\$168	\$ 20	\$148
	125 (1000) ²	.21	210	20	190
	150 (1200) ²	.21	252	20	232
Soybeans, Single crop, (bu.) . .	30	\$5.50	\$165	\$ 71	\$ 94
	40	5.50	220	77	143
	50	5.50	275	86	189
	60	5.50	330	98	228
Double crop, (bu.) . .	15	\$5.50	\$ 82	\$ 65	\$ 17
	20	5.50	110	69	41
	25	5.50	138	74	64
Wheat (bu.)	36	\$3.00	\$108	\$ 60	\$ 48
	45	3.00	135	64	71
	54	3.00	162	72	90
	63	3.00	189	81	108
Wheat (bu.) farm stored loan	36	\$3.65	\$131	\$ 62	\$ 69
	45	3.65	164	66	98
	54	3.65	197	75	123
	63	3.65	230	85	145
Land diversion for wheat Program yield, bu. . .	36	\$2.70	\$ 97	\$ 20	\$ 77
	45	2.70	122	20	102
	54	2.70	146	20	126
Deficiency for wheat Program yield, bu. . .	36 (192) ²	\$.65	\$125	\$ 20	\$105
	45 (240) ²	.65	156	20	136
	54 (288) ²	.65	187	20	167
Oats (bu.)	60	\$1.40	\$ 84	\$ 50	\$ 34
	80	1.40	112	54	58
	100	1.40	140	62	78
Hay (ton)	3.0	\$60	\$180	\$ 73	\$107
	4.5	60	270	103	141
	6.0	60	360	133	190

¹ Includes seed, pesticides, fertilizer, machinery repairs and fuel, drying costs and interest on operating capital only (Table 3). Also includes bin costs for commodity loan situations.

² Production eligible for deficiency payment per acre set aside --
 corn: program yield $\times .8 \div .1$ acre set aside.
 wheat: program yield $\times .8 \div .15$ acres set aside.

Table 4. Net Crop Returns Over Variable Costs per Base Acre¹ for Participation vs. Non Participation in 1983 Feed Grain Program for Corn

	Realized yield 25 bu. less than 125 bu. program yield		Realized and program yields equal at 125 bu.		Realized yield 25 bu. greater than 125 bu. program yield	
	Not Parti- cipate	part- cipate	Not Parti- cipate	part- cipate	Not Parti- cipate	part- cipate
Sell at harvest						
Low prices ²	\$ 82	\$ 54	\$120	\$102	\$161	\$153
Current future contract ³	104	81	148	136	194	194
High prices ⁴	128	125	175	184	233	255
Store on farm						
Low prices ²	132	77	183	131	240	190
Current future contract ³	132	114	183	175	240	240
High prices ⁴	150	152	208	225	270	300

¹ Base acre is the sum of .8 acre of corn, .1 acre of land diversion and .1 acre of set aside for participation and 1 acre of corn for non participation.

² Cash harvest \$2.00, July stored \$2.50, \$.21 deficiency payment rate.

³ Dec. futures \$2.70, estimated cash harvest \$2.25, estimated cash stored July 1984 \$2.85, \$.21 deficiency payment rate.

⁴ Cash harvest \$2.60, July stored \$3.25, \$.105 deficiency payment rate.

EVALUATION OF PROGRAM PARTICIPATION ON CROP RETURNS

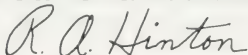
The effect of participation in the 1983 feed grain and wheat programs on farm crop returns depends upon several factors. Three major factors are expected prices, expected yields and availability and cost of storage. Other factors are the extent expenditures can be reduced by idling acres, the level of payments for idled acres and the opportunity returns from land put in conserving uses. Producers should carefully budget through their situation. Worksheet AE 4543/INCOME POSSIBILITIES: PARTICIPATION VS. NON PARTICIPATION IN 1983 GOVERNMENT PROGRAMS FOR CORN OR WHEAT is available from county extension offices.

A summary of net returns over variable costs for program participation vs. non participation under varying price, yield, and storage situations is presented in Table 4. The results include three levels of price expectations. The prices used were \$2.00, \$2.25 and \$2.60 for harvest time and a \$2.50, \$2.85 and \$3.25 July 1984 stored price. The current forward contract market prices were estimated from the \$2.70 December 1983 futures quotation on October 1, 1982. At both the current forward contract price and the low expected price level, the loan would be forfeited. At the high price level, the loan would be redeemed. The two storage alternatives were sale at harvest and from farm storage. The three yield situations were: realized yield 25 bushels less than 125 bushel program yield, realized yield equal to 125 bushel program yield and lastly, realized yield exceeding 125 bushel program yield by 25 bushels.

Net crop returns from participation equal or exceed those from non participation when expected market prices are at current contract or lower levels. This is true regardless of the yield or storage situation. Only if prices are at higher levels would non-participation be more profitable.

When realized yields fail to reach program yield levels, net returns from participation are equal to or greater than those from non participation even if high prices occur. The land diversion and target price deficiency payments gives an assured return that offsets the reduction in the value of production from fewer planted acres.

Even when realized yields exceed program yields, participation pays at low prices for all storage situations. However, as expected prices increase, the higher yields make participation a less attractive alternative.



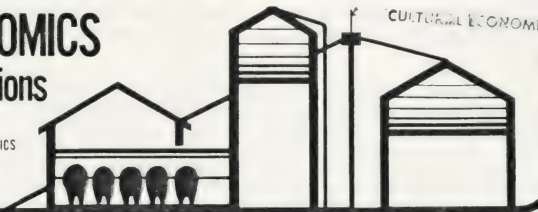
R. A. Hinton,
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



November, 1982

82-14/The New Illinois Corn Marketing Program and Referendum

Large crops and lower prices in the last two years have stimulated interest among Illinois corn growers to develop markets and promote greater use of corn both at home and abroad. In 1979 and 1982, the Illinois legislature passed measures authorizing producers to develop marketing programs and to conduct a referendum that would permit the assessments necessary for financing such programs.

THE PROPOSED CORN MARKETING PROGRAM. Between November 24 and December 15, 1982, Illinois farmers will have the opportunity to vote on a proposed marketing program for Illinois corn and corn products. The program has two main features: market development and educational programs. The objective will be to enlarge markets for corn, direct more research toward more efficient use of corn, and encourage cooperation with other states, organizations, and agencies in market development, market information, and research programs. The program would not include efforts to increase production.

All producers who sell corn in the state are subject to the program. The first purchaser would deduct one-fourth cent per bushel from each producer selling corn and would send the funds collected to the Corn Marketing Board, a producer-elected board responsible for managing and directing the marketing program.

All kinds and varieties of corn, except popcorn and sweet corn, would be included in the program. Corn fed to livestock would not be subject to the program. Producers not wishing to participate may file a request for refunds from the marketing board. Forms will be available at local elevators.

Referendum ballots will be mailed to all producers on the county ASCS mailing lists. Qualified producers who do not receive a ballot may request one from the Illinois Department of Agriculture. All ballots must be returned by mail to the Illinois Department of Agriculture by December 15.

Producer-financed marketing programs for corn are less widespread than for soybeans. However, Iowa, Kansas, Nebraska, Virginia, and North Carolina have established corn marketing programs with producer assessments. The proposed Illinois program is similar to the Iowa program passed in the spring of 1982.

Each producer has only one vote even though he may grow corn on more than one farm or in more than one county. In a partnership, only one partner may cast a vote. Both landlord and tenant can vote on farms where corn is grown under a crop-share lease. But owners who cash-rent all their land are not eligible to vote. If legal

title to corn is held by both husband and wife, then it is their responsibility to decide who will cast the vote. If each spouse can meet the definition of a producer, then each can cast a vote.

DO MARKET DEVELOPMENT EFFORTS PAY OFF? In a study by Chase Econometrics for the American Soybean Association, market development with soybeans showed a return to growers of about \$58 for each dollar invested. Return from producer investments in market development for corn and corn products would probably be lower but still profitable. Another Chase Econometrics study showed that an increase in U.S. feed grain exports would draw down inventories, put upward pressure on feed grain prices, and increase feed grain acreage. On the basis of a 1990 outlook calling for a moderate growth in feed grain exports, an additional 10 percent annual increase in exports would be expected to increase average corn prices by 10 percent.

DO PRODUCERS WANT A MARKETING PROGRAM? A survey of a representative sample of Illinois corn producers in March, 1982, shows that more than 85 percent favored joint efforts between the USDA and producer and industry groups to promote more: use of corn in foreign countries; research and market development efforts to expand domestic food and feed uses for corn; and research and market development to expand domestic uses for alcohol fuel and industrial purposes.

Many Illinois farmers are already participating in marketing development programs. In the survey, 75 percent reported participating in soybean, 19 percent in pork, 12 percent in beef, and 6 percent in dairy promotion programs.

A majority of farmers felt check-off programs served a useful purpose but wanted them to be voluntary. About two out of three wanted funds for market development programs controlled by a farmer-elected board of directors. Only 16 percent said they opposed all forms of producer check-off programs. A majority favored the corn marketing and check-off program similar to the one in Iowa.

Harold D. Guither

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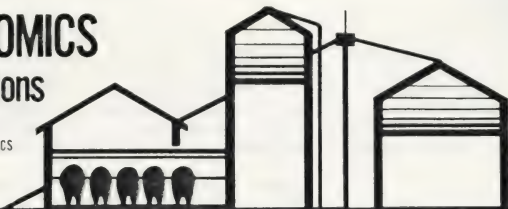
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



January, 1983

Valuing Farm Input Handbook
Section 4, No. 5
(Replaces 81-16, November 1981)

83-1/Leasing vs. Purchasing Farm Machinery-1983

The Tax Equality and Fiscal Responsibility Act of 1982 resulted in some minor changes in the tax advantages of leasing versus purchasing farm machinery. Under the 1982 act you are required to reduce the basis of assets by 50 percent of investment tax credits. You may elect to use the full basis and reduce the investment credit by two percentage points (from 10 percent to 8 percent or from 6 percent to 4 percent). Using a 12 percent interest charge on a four-year purchase plan, it is to your advantage to reduce the basis by 50 percent of the investment tax credits unless your income puts you in the 40 percent marginal tax bracket, in which case you should use the full basis and reduce the investment credit by two percentage points.

If you can earn 12 percent on your investment and you have calculated the present value of the cash outflows, then it will be to your advantage to reduce the basis by 50 percent of the investment tax credits unless you are in the 45 percent marginal tax bracket. In that case, you should use the full basis and reduce the investment credit by two percentage points.

The internal revenue code defines a finance lease as an agreement that contains a 10 percent fixed price purchase option or that involves limited use property. Leases of new Section 38 property used for farming after July 1, 1982, may qualify for finance lease treatment if the cost basis of the leased property does not exceed \$150,000 when added to the basis of all other farm property subject to a finance lease signed during the calendar year. These leases of farm property are not subject to the lessor cap, the lessee cap, or the spread of the investment credit. The 1982 act does not alter the present legal treatment of leases other than finance leases or safe harbor leases.

The following table can be used to decide whether it is more advantageous to purchase or lease a machine. Here is an example of a typical problem and solution:

Problem: A dealer will sell a farm machine for \$10,000. The farmer can finance the machine at the bank with 25 percent down and four annual equal payments at an interest rate of 12 percent on the unpaid balance. A leasing company will lease the machine for five years with annual lease payments of \$2,000 each. At the end of the lease, the machine is the property of the leasing company. The farmer is in the 22 percent marginal tax bracket and has a 12 percent opportunity cost or discount rate.

Solution: The table shows that a 12 percent interest rate with a 22 percent marginal tax rate and a 12 percent discount rate has a breakeven lease payment of 16.3 percent of the purchase price—in this case, \$1,630. If the annual lease payment is equal to or less than \$1,630, it is more favorable to lease the machine. If the actual lease payment is greater than the breakeven lease payment, it is more advantageous to purchase the equipment. In this example the actual lease payment is \$2,000, so it would be cheaper to purchase the machine than to lease it.

*Breakeven Annual Payment on a Five-Year
Lease as a Percentage of Purchase Price^a*

Marginal tax rate	Interest rate (percent)		
	10	12	15
Discount rate			
No tax adjustment, no discount rate	15.8	16.5	17.6
22 percent marginal tax rate			
no discount rate	13.5	14.2	15.3
10 percent discount rate	15.2	--	--
12 percent discount rate	15.5	16.3	--
15 percent discount rate	15.8	16.7	17.8
50 percent marginal tax rate			
no discount rate	12.7	13.5	14.6
10 percent discount rate	14.1	--	--
12 percent discount rate	14.3	15.1	--
15 percent discount rate	14.7	15.4	16.6

^aThe table lists percentages of the purchase price required to provide five annual lease payments. The sum of these payments when discounted over the specified period will equal the present value of the discounted cash flow of the purchased machine. Computations were made by using the following assumptions: the purchase included 25 percent down, four annual equal principal payments, and the selected interest rates on the remaining principal balance; salvage value is 40 percent of purchase price at the end of five years; 10 percent investment credit is taken on the purchased machine; and 95 percent of purchase price is depreciated for five years on ACRS. At the end of the lease the equipment is the property of the lessor or may be purchased by the lessee at fair market value.

The breakeven lease payments may be altered by these factors:

1. Marginal income tax rate. Each 10 percent increase in the tax rate reduces the breakeven point by about 0.5 percent.
2. Discount rate. Each 1 percent increase in the discount rate increases the breakeven point by about 0.1 percent.
3. Interest rate. Each 1 percent increase in the interest rate increases the breakeven point by about 0.4 percent.

4. Investment tax credit. If the lessor passes the investment tax credit on the leased machine to the lessee (farmer), the five-year tax credit increases the breakeven point by about 2.5 percent.
5. Salvage value. For a machine with five years of use at 40 percent salvage value, each 10 percent increase in salvage value reduces the breakeven point by about 1.6 percent.
6. Financing plan. Four purchase plans were studied: Cash purchase; 25 percent down payment and three equal annual payments; 25 percent down payment and four equal annual payments; and 25 percent down payment and five equal annual payments. If the discount rate is greater than the interest paid, then the longer pay periods make it more favorable to purchase equipment.

Use the table to help you decide whether to lease or purchase farm equipment; if there are variations from the typical lease, the factors above will explain how to adjust the breakeven percentage. If there are special provisions in the lease and you need a precise answer, use the Purchase/Lease Worksheet, AE 4503, in *Farm Economics Facts and Opinions* 81-17, December 1981.



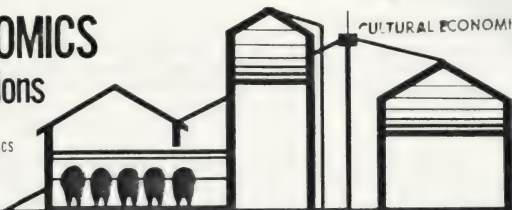
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



March, 1983

83-2/Elevator Bankruptcies, Part 1: Causes and Risks

In these financially stressful times, farmers often worry that the elevator they do business with will go bankrupt. Their concern has grown in direct proportion to their own financial difficulties and to those of other businesses related to agriculture. The questions that farmers most often ask about elevator bankruptcies are: Why does an elevator go bankrupt? What are the chances of my elevator going bankrupt? How am I protected by law? How can I minimize my risk in the event of an elevator bankruptcy? This two-part series answers these questions and offers some suggestions about how to minimize financial risk if an elevator bankruptcy does occur.

Part I explores those factors which often lead to elevator insolvency or bankruptcy and looks at figures that indicate the probability of failure. Part II, to be published in the next issue of *Facts and Opinions*, briefly describes the laws that have been enacted in Illinois to deal with the problem of elevator bankruptcy and shows how farmers can reduce their exposure to such an event.

The Causes

It is widely believed that elevators go bankrupt because their managers are speculating on the futures market. Speculation, as well as some other controllable causes, can be the reason behind an elevator's failure. But a close look at the causes of elevator bankruptcy shows that most causes are out of the manager's control.

Even well-managed elevators may have difficulty coping with some of the recent changes in our economy—changes in basis, volume of grains handled, interest rates, and transportation costs. For example, elevators may incur losses from their normal hedging operations if the basis between cash and futures market prices or the spreads between futures market prices move adversely. Such changes have occurred in each of the last three years.

It should also be obvious that changes in the volume of grain handled by the elevator will affect revenue from elevator operations. For example, in 1980-81, when crop production fell dramatically from the year before, the reduced volume of grain generated revenue which barely offset the elevator's expenses for handling the grain. In addition, widely fluctuating interest rates in 1980 and persistently high interest rates in 1981 and early 1982 clearly caused financial stress in all businesses, including elevators. Finally, the government's deregulation of many businesses has had its effect on agriculture. Recent changes in U.S. laws regarding the regulation of freight rates, especially those of rail traffic, have led to



major shifts in the cost structure of various methods of transportation, causing some rail links that serve country elevators to operate at substantial losses. Thus, not only have some elevators been put under financial stress by higher transportation costs, but many have actually closed because rail service to their facilities has been reduced or eliminated.

As stated earlier, when an uncontrollable change occurs, an elevator may suffer some financial hardship. When more than one of these changes occur, the financial problems of many elevators may become particularly acute. In the last two to three years, *all* of these changes have occurred, making elevator bankruptcy more likely than ever before.

There are, of course, some causes of bankruptcy that can be avoided. Poor management is the leading cause of avoidable elevator failure. The operator may keep sloppy records, manage the cash flow of the elevator poorly, maintain operating margins that do not cover his full cost of operation, misunderstand the use of the futures market in his hedging operations, or simply be undercapitalized.

Other controllable factors which occur somewhat less frequently include falsification of records, speculation in the cash or futures markets, and the diversion of elevator funds for personal use. Falsification of records is usually tied in with one of the other factors. In this case, the elevator manager simply tries to hide past mistakes. Speculation may occur unknowingly when the manager has a poor record-keeping system or misunderstands the use of futures markets. The operator may speculate in an effort to cover financial losses from earlier mistakes. Finally, some elevator managers may simply be unscrupulous and divert grain or funds from the elevator for their own personal use.

The Risks

Data compiled by researchers at the University of Illinois about elevator bankruptcies in eight Midwestern states suggest that the chance of any one elevator going bankrupt is really quite small. Their figures show that between January 1, 1974, and June 1, 1982, 165 out of a total of about 10,027 grain elevators licensed in the eight Midwestern states have either become insolvent or gone bankrupt. These data, summarized in the table, show that an average of about 20 elevators have suffered severe financial stress in each of the past 8 1/2 years. In other words, for every thousand elevators in this region it is likely that only two of them will go out of business this year. When compared to the failure rate of nonagricultural businesses (nearly four per thousand every year), this is a relatively low rate.

In Illinois, an average of four or five elevators out of a 1982 total of about 2,325 elevators and dealers have failed each year over the same 8 1/2-year period. While this gives Illinois the dubious distinction of having the highest total number of insolvencies over this period (38), the rate of insolvency in Illinois is actually the same as the region's average—two per thousand. This is well below Michigan's insolvency rate of five per thousand and Missouri's rate of three per thousand. Thus, the odds of your local elevator becoming insolvent appear to be really quite small, especially in Illinois.

Nevertheless, because individual farmers have lost large amounts of money in the past, others may remain anxious about the possibility of grain business failure. In the study area, elevator failure cost an individual farmer an average of over \$5,200. Some farmers lost more than \$100,000 at a time, but most losses were lower than the average.



State	Number of licenses in 1980			Number of insolvencies from 1974 to 1982 ^a		
	Grain warehouse	Grain dealer	Total	Total	Yearly average	Yearly rate per thousand businesses
Illinois	810	1,515	2,325	38	4.5	1.9
Indiana	562	429	991	18	2.2	2.2
Iowa	811	1,843	2,654	29	3.4	1.3
Michigan	NA ^b	507	507	22	2.6	5.1
Minnesota	846	443	1,289	21	2.5	3.0
Missouri	368	461	829	12	1.4	1.1
Ohio	616	238	1,105	22	2.6	2.4
Wisconsin	89	238	327	3	0.4	1.2
Total	4,102	5,925	10,027	165	19.6	2.0

^aThe study period extends from January 1, 1974 to June 1, 1982.

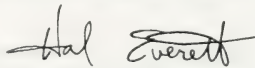
^bMichigan requires only a grain dealer license for all grain facilities.

Source: Richard P. Casey, Jr. 1982. Unpublished M.S. thesis. University of Illinois at Urbana-Champaign.

From a different perspective, however, the possibility of recovering money lost in an elevator bankruptcy has improved substantially in Illinois since 1979. Before that year, Illinois farmers recovered only 26¢ for each dollar owed them by failed elevators. Since then, the laws regarding the operation of grain warehouses and grain dealers have been improved, and farmers' losses have been reduced by about two-thirds. Farmers now recover about 73¢ for every dollar they lose. (This legislation will be discussed in detail in the next issue of *Facts and Opinions*.)

Should Farmers Still Be Concerned?

If the chances of an elevator going bankrupt are so small, should a farmer still be concerned about such a possibility? Yes! Unnecessary elevator failures still occur too often, and the expense to farmers is great. Part II of this series will discuss how recent legislation in Illinois is helping to protect farmers from severe financial loss, as well as what farmers can do to protect themselves. Don't miss it!



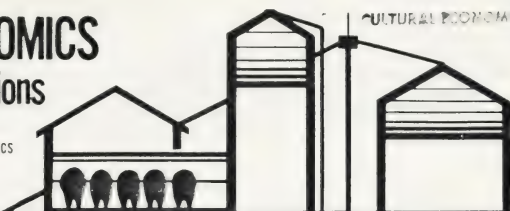
Hal Everett, Extension
Agricultural Economist



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



March, 1983

83-3/Elevator Bankruptcies, Part 2: Protection for the Farmer

This is the second of two *Facts and Opinions* dealing with elevator bankruptcies. Part I discussed the major causes of elevator failure, the farmer's chances of becoming involved in an elevator failure, and his or her probable loss. Most problems with elevators appear to begin with poor management. This, combined with controllable factors such as undercapitalization or uncontrollable factors such as changing transportation costs, may lead to the elevator's failure. The actual rate of failure is small, however. In Illinois, an average of about two elevators per thousand fail each year, compared to the national rate of four per thousand in nonagricultural businesses. When failures do occur, farmers in Illinois now recover about 3/4 of every dollar owed them by the elevator, up from 1/4 in the late 1970s.

The low rates of elevator failure and subsequent financial losses by farmers may result in part from laws passed by the Illinois legislature in the last several years. Part 2 discusses this legislation and recommends ways in which farmers can avoid becoming involved in elevator bankruptcies.

Legislation to Protect Farmers

Since 1979, Illinois has enacted several pieces of legislation designed to reduce the occurrence of elevator bankruptcy and to protect farmers in such an event. These laws deal with the licensing requirements of grain warehouses and grain dealers as well as the distribution of elevator grain assets to farmers should an elevator go bankrupt.

The new laws pertaining to warehouse and dealer licensing essentially require the manager or dealer to adopt certain financial standards and business practices so that he acts as a more responsible handler of grain. For example, a warehouseman must submit a financial statement to the Illinois Department of Agriculture before a license will be granted, and a new financial statement must be submitted within 90 days after the close of the business's fiscal or calendar year before the license will be renewed. The Illinois Department of Agriculture also requires that a grain elevator have a minimum net worth of \$20,000 and that it post security bonds with a minimum value of \$10,000. However, the net worth of most elevators and the value of their security bonds are likely to be larger than these figures--how much larger depends on the elevator's storage capacity. Finally, grain warehouses licensed in Illinois can only issue warehouse receipts that have been approved by the Illinois Department of Agriculture.

Grain dealers also must submit financial statements to the Illinois Department of Agriculture to obtain a license for operation. These statements must show that current assets are at least equal to current liabilities, that equity is no less than 1/3 of total liability, and that the firm has a net worth of at least \$20,000. Grain dealers must post a surety bond with a minimum value of \$25,000 and a maximum value of \$100,000. In addition to meeting these financial and bonding conditions, grain dealers must apply to the Illinois Department of Agriculture before they can use price later contracts, and the application must state how the dealer intends to protect himself in the use of these contracts.

The most recent legislation enacted in Illinois is Public Act 82-771 (known as House Bill 2505 until recently), which establishes a priority system by which failed grain dealers and warehousemen must distribute their assets to claimants. The first claimants to be paid are the holders of warehouse receipts or other written documentation of storage (e.g. scale tickets that had been marked to show that the grain would be moved into storage). Typically, this group will consist mostly of farmers, but it may also include lenders who received warehouse receipts as collateral for loans. The second group of claimants are sellers whose grain has been priced and delivered within the last 30 days but who have not been paid. This group includes those who entered into cash sales or price later contracts, as long as delivery and pricing was completed during the 30-day period before the failure of the elevator. The third claimants to be paid are all grain sellers not included in the second group. This group will consist mostly of farmers who entered into price later contracts with the failed elevator but who have not yet priced their grain.

The major difference between this law and earlier legislation is that grain sellers who have not yet been paid for grain that was priced and delivered to the elevator now have a clearly established priority, just behind those farmers who have grain stored in the elevator. Although not included in this law, any grain assets remaining after claims have been settled with these three groups become available to other secured creditors first, then to general creditors.

How to Minimize Risk

Farmers can minimize their risk of involvement in elevator bankruptcies by following some guidelines suggested by the U.S. Department of Agriculture. These guidelines are broken down into two areas: What to watch for in an elevator's operation and what you can do to reduce your risk of exposure to elevator failure.

An elevator or grain dealer's business practices can be key indicators of the business's financial health. Businesses in trouble often resort to unusually aggressive bidding for grain in an effort to increase volume, or they may be unwilling to make actual payments for grain because they have serious cash flow problems. Listed below are six key questions a farmer should ask to assess an elevator or grain dealer's business condition.

1. Does the grain buyer or warehouseman consistently offer prices higher than other buyers in your area without a valid reason for doing so?
2. Does the buyer or warehouseman consistently offer economic incentives not usually offered in the purchase of grain, such as little or no discount for high damage, dockage, or moisture?

3. Does the buyer or warehouseman have a history of slow payment, issuing bad checks, or recurring financial problems?
4. Does the buyer or warehouseman ask you to hold a check for a few days before depositing it or until he receives payment for the grain?
5. Does the buyer or warehouseman urge you to leave your grain money on deposit, even promising interest?
6. Does the buyer or warehouseman try to persuade you not to ask for your stored grain, or does he want to pick up your receipt without paying for it?

There may be legitimate explanations for a grain buyer or warehouseman to do one or more of the above. The hint of trouble will be in the consistency or prolonged occurrence of these actions. If you observe such behavior by a buyer or warehouseman, it is certainly time to start asking questions and to think about marketing your grain elsewhere.

You can reduce your chances of becoming an unwilling participant in an elevator failure by following these rules:

1. Know to whom you sell. Is it a well-established business? Learn all about your buyer. How well financed is he? Does he run a "businesslike" operation? Does he have a fixed facility? Can you reach him at a place of business? What does your bank think of him?
2. Where licensing laws are in effect, deal only with state and federally licensed and bonded elevators and warehousemen. Know the laws that can protect you. Report dissatisfactions promptly. When in doubt, ask questions.
3. Demand payment for sale grain when it is due and cash your check promptly.
4. Request written documents for *all* transactions. Read them thoroughly; if you don't understand them, ask for clarification.
5. Understand the risks associated with delayed pricing (DP) and deferred crop payment contracts (DCPC). (You are extending credit, and you lose title to your grain. You do not have the same rights as storage depositors).
6. Insist on a warehouse receipt for stored grain. Do not rely on a scale ticket only. The value of a warehouse receipt over a scale ticket cannot be overemphasized.

The above suggestions are simply good business practices. Farming operations are businesses, and it makes good sense to follow these practical recommendations.

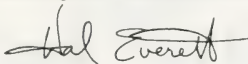
Conclusion

While the chance of being in an elevator bankruptcy is small, it is easy to understand why farmers are so concerned about the financial conditions of elevators and the laws that protect farmers in the event of elevator failure. When an elevator does fail, a great deal of publicity is usually generated about the losses suffered by individual farmers. The size of those losses has been reduced in recent years as a result of new legislation requiring that grain warehouses and dealers meet certain financial standards before they are licensed.

Nevertheless, the risk of being an unwilling participant in an elevator failure can be reduced by simply following good business practices. Farmers should know the financial condition and business reputation of the elevator they do



business with, demand that the elevator make payment as quickly as possible, and obtain a warehouse receipt for stored grain. No matter how remote the possibility of elevator failure is, protecting your stored grain rests with how well you follow these practices.



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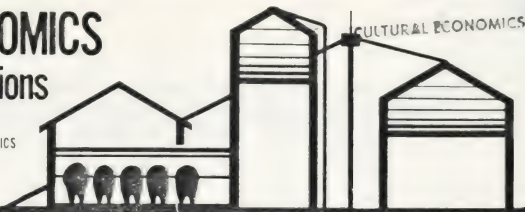
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



February, 1983

83-4/ THE REDUCED ACREAGE & PAYMENT-IN-KIND PROGRAMS FOR 1983

PIK PROGRAM PROVISIONS

With the announcement of the Payment-In-Kind (PIK) program on January 11, Illinois farmers now have additional factors to consider in making their corn and wheat acreage decisions.

SIGN-UP PERIOD: January 24 through March 11.

PROGRAM OBJECTIVES:

The PIK program is an additional effort to reduce production, reduce surplus stocks and avoid increased federal budget outlays.

PAYMENT RATE: The payment rate will be 80 percent of the program yield for corn and grain sorghum and 95 percent for wheat. Oats and barley are not included in the PIK program.

FOUR PLANTING OPTIONS:

- (1) Participate only in the regular 20 percent reduced acreage program (RAP) announced in September (See Farm Economic Facts & Opinions 82/13).
- (2) Participate in the regular program plus 10 to 30 percent of your base acreage in the payment-in-kind program (PIK).
- (3) Remove your total base acreage from production if your bid is accepted.
- (4) Do not participate in the program at all.

WHOLE BASE BIDS. The number of such bids accepted will depend on the level of sign up for the regular acreage reduction and 10 to 30 percent PIK, the supply-demand situation for the commodity, conditions in local areas, and other factors. In no case would the amount of diverted acreage exceed 50 percent of the total base in a county. The USDA reserves the right to reject any or all bids.

No bid for more than 80 percent of the normal corn yield will be accepted. Those who make whole base bids should sign up for the regular PIK program if they want to participate at the 10 to 30 percent rate in case their whole base bid is not accepted. The opening of whole base bids will be at county ASCS offices on March 18 and will be open to the public.

CONSERVATION USE REQUIREMENTS.

Acreage placed in the RAP and PIK programs will have the same conservation use requirements as previously announced, except haying and pasture will be permitted on winter wheat planted before the PIK program was announced.

TIMING OF PAYMENTS

The PIK commodity payment will be made available (the beginning of the marketing year) July 1 for wheat, October 15 for corn and grain sorghum. Any producer who receives a PIK commodity payment will be allowed five months free storage so he does not have to take title or sell as soon as it becomes available.

SOURCES OF PIK GRAIN

Grain will come from stocks under 9 month CCC loans, farmer-owned reserve, or CCC owned stocks. A producer who has a 9 month loan or reserve grain will be paid from those stocks. Otherwise the PIK payment will be supplied from CCC controlled stocks in the nearest elevator or warehouse storage. Farmers who redeem their own farm stored grain from the reserve will receive extra compensation for an additional seven months storage (15.5 cents) plus \$.000726 per bushel for each day after the availability date until they take title to the grain prior to the end of the 5 months free storage period.

FIGURING PAYMENTS

Land diversion: Program yield times 10% of base acreage times \$1.50 for corn or \$2.70 for wheat.

PIK: Program yield times 80 percent (for corn) times percent of base acreage contracted (95 percent of program yield for wheat).

PIK whole base bid: Percent of program yield bid times 90 percent of base acreage. The 10 percent land diversion payment will be made with whole base bids that are accepted.

Deficiency Payments: The payment rate will be the difference between the target price of \$2.86 and the average market price from October through February 1984. If the market price averages below the loan rate of \$2.65, the maximum payment rate will be 21 cents (\$2.86 less \$2.65). The total deficiency payment will be calculated by multiplying the payment rate times the program yield times the number of acres of corn produced. If deficiency payments are paid, PIK participants will be receiving less than those who participate only in the regular RAP program since they will have fewer acres of corn. If whole base bids are accepted, the PIK participants in this program will receive no deficiency payments, since they will have no corn acreage.

CONTRACT OBLIGATIONS

If you sign up for 10 to 30 percent PIK or have your whole base bid accepted, you have signed a valid contract. You must carry out the contract or face penalties of 57 cents a bushel on corn or 86 cents a bushel for wheat (20 percent of the target price). If you sign up for the 20 percent RAP program only, you can withdraw without penalty.

EVALUATION OF PROGRAM PARTICIPATION ON CROP RETURNS

The effect of different participation options in the 1983 feed grain and wheat programs on farm crop returns depends upon several factors. The major factors are expected prices and the relation of expected yields to program yields. Other factors are the extent expenditures can be reduced by idling acres, the level of payments for idled acres, the opportunity returns from land put in conserving uses and the availability and cost of storage. Producers should carefully budget through their situation. Worksheet AE-4543/Rev. INCOME POSSIBILITIES: PARTICIPATION VS. NON PARTICIPATION IN 1983 GOVERNMENT PROGRAMS FOR CORN OR WHEAT is available from county extension offices. A completed sample form is attached.

COMPARISON OF CROP RETURNS

A summary of net returns over variable costs for the three program participation options vs. non participation under varying price and yield situations is presented in Table 1. The results include three levels of price expectations. The prices used were \$2.30, \$2.60 and \$2.90 for March-May, 1984 prices. For the RAP and the 10-30% PIK options, it is assumed that the loan would be forfeited. At higher price levels, the loan would be redeemed. The total base PIK bid is assumed to be 70% of the 120 bushel program yield. The three yield situations were: realized yield 20 bushels less than 120 bushel program yield, realized yield 130 bushel vs. 120 program yield and lastly, realized yield exceeding 120 bushel program yield by 40 bushels.

Net crop returns from participation in basic acreage reduction program equal or exceed those from non participation when expected market prices are at current contract or lower levels. Only if prices are at higher levels would non-participation be more profitable than the basic reduced acreage option when realized yields equal program yields.

When realized yields fail to reach program yield levels, net returns from all RAP and PIK program participation options are equal to or greater than those from non-participation even if high prices occur. The assured return from land diversion and target price deficiency payments plus the reduced variable costs offsets the reduction in the value of production from fewer planted acres. The PIK options have an advantage over the RAP only option when realized yields are below program yields.

Even when realized exceed program yields, participation in basic RAP and 10-30% PIK programs pays at low prices. However, as expected prices increase, the higher yields make non participation a more attractive alternative.

The more variable costs can be reduced, the more attractive is participation in the PIK options. This factor shows up in the comparison of participation alternative for share tenant and landowners in Table 1. Since the tenant would have a greater reduction of variable costs, the net crop returns advantages of the participation options over non participation tend to be greater for the tenant than the landowner under the typical 50-50 crop and cost share leasing arrangement. On some farms, adjustments in cost sharing may be needed to make it mutually beneficial for both tenant and the landlord to participate in the PIK options.

BREAK EVEN BIDS FOR WHOLE BASE PIK

In Table 2 are the break-even percent of program yield bids to make crop returns from the total base program participation equal to the net return from the other program participation options. The effect of expected prices and expected yields relative to program yields differ from the net return relations shown in Table 1. This is because the value of PIK commodity payments will vary with the market price. Hence, at a given price, higher total farm bids are necessary for higher expected yields in all options. Lower prices result in lower breakeven bids for the non-participation option only. Because of the loan price protection available for all the corn produced in the RAP only and 10-30% PIK program participation options, a higher yield bid is necessary for the total base option to give equal returns when market prices are expected to be lower.

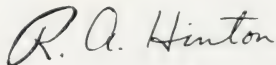
OTHER RISK FACTORS TO CONSIDER -

Income protection in the basic RAP program is offered to participants through diversion payments, target price deficiency payments and price protection on production through price support loans. PIK commodity payments are guaranteed in quantity but not in price since PIK grain received is not eligible for price support loans.

Protection for production risks are available to all producers through the Federal Crop Insurance Corporation. Additional yield guarantees from 6 to 10 percent will be given to 10-30 percent PIK participants who buy Federal Crop Insurance on their planted acres of corn, wheat or grain sorghum. Participants in PIK are expected to grow crops on their more productive acreage; therefore, qualify for higher yield guarantees. Premium rates will remain the same as with standard coverage.



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PROGRAM INFORMATION

	Non-Participation	Basic RAP Program	RAP + 10% PIK	RAP + 30% PIK	Total Base in LD & PIK
1. Program crop base	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
2. Acres diverted (line 1 x <u>10</u> %)		<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
3. Acres in PIK (line 1 x <u> </u> % PIK)			<u>10</u>	<u>30</u>	<u>40</u>
4. Actual planted acres	<u>100</u>	<u>80</u>	<u>70</u>	<u>50</u>	<u>0</u>
5. Red. reduced acres (line 3 + 4 x <u>12.5</u> %)		<u>10</u>	<u>10</u>	<u>10</u>	<u>0</u>
6. Program yield	<u>120</u>	<u>120</u>	<u>120</u>	<u>120</u>	<u>120</u>
7. Program production (line 4 x line 6)		<u>9,600</u>	<u>8,400</u>	<u>6,000</u>	<u>—</u>
8. Expected yield	<u>130</u>	<u>132</u>	<u>135</u>	<u>135</u>	<u>—</u>
9a. Expected production (line 4 x line 8)	<u>15,600</u>	<u>10,560</u>	<u>9,450</u>	<u>6,750</u>	<u>—</u>
9b. Expected PIK bu. pymt. (line 3 x line 6 x <u> </u> %)			<u>960</u>	<u>2,880</u>	<u>3,640</u>

INCOME

10. Grain returns (line 9ax <u>\$2.60</u> /bu.)	<u>33,800</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
x or loan <u>\$2.65</u>					
11. Div. payment (line 2 x line 6 x <u>\$1.50</u> /bu.)		<u>27,984</u>	<u>25,042</u>	<u>17,888</u>	<u>1,800</u>
12. Deficiency payment (line 7 x <u>\$21</u> /bu.)		<u>1,800</u>	<u>1,800</u>	<u>1,260</u>	<u>—</u>
13. PIK income (line 9b x <u>\$2.60</u>)		<u>2,016</u>	<u>2,496</u>	<u>7,488</u>	<u>19,656</u>
14. Other income or reduced costs	<u>0</u>	<u>1,408</u>	<u>1,717</u>	<u>1,257</u>	<u>108</u>
15. Total income (line 10, 11, 12, 13 + 14)	<u>33,800</u>	<u>33,708</u>	<u>32,819</u>	<u>28,642</u>	<u>21,764</u>

VARIABLE COSTS

16. Program crop					
a. Fert. & crop (line 4 x <u>\$86</u> /A.)	<u>8,600</u>	<u>6,880</u>	<u>6,020</u>	<u>4,300</u>	<u>0</u>
b. Mchv. fuel & rep. (line 4 x <u>\$32</u> /A.)	<u>3,200</u>	<u>2,560</u>	<u>2,240</u>	<u>1,600</u>	<u>0</u>
c. Dry and store (line 9 x <u>\$20</u> /bu.)	<u>2,600</u>	<u>2,112</u>	<u>1,890</u>	<u>1,350</u>	<u>0</u>
Cons. use (lines 2 + 3 + 5) x <u>\$20</u> /A.)	<u>0</u>	<u>400</u>	<u>600</u>	<u>1,000</u>	<u>2,000</u>
Other	<u>864</u>	<u>717</u>	<u>645</u>	<u>495</u>	<u>120</u>
19. Total costs (lines 16 + 17 + 18)	<u>15,264</u>	<u>12,669</u>	<u>11,395</u>	<u>8,745</u>	<u>2,120</u>
NET RETURNS OVER VARIABLE COSTS					
20. Line 15 minus line 19	<u>18,536</u>	<u>21,039</u>	<u>21,424</u>	<u>20,947</u>	<u>19,336</u>

BREAK-EVEN PRICE NON PARTICIPATION

21. (Part. Net line 20 - PIK Inc. line 13 + Non-part. Costs line 19) ÷ (Non-part. bu. prod. line 9a - PIK bu. line 9b)		<u>2.79</u>	<u>2.84</u>	<u>2.84</u>	
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BREAK-EVEN TOTAL PIK BID (% of Pgm. Yield)

22. (Net line 20 + Total PIK cost line 19 - D. Pymt. line 11) ÷ Price line 13 ÷ PIK Ac. line 3 ÷ Pgm. Yd. line 6 x 100	<u>67</u> %	<u>76</u> %	<u>77</u> %	<u>75</u> %	
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Prepared by R. A. Hinton, Extension Specialist, Farm Management, University of Illinois at Urbana-Champaign, AE-4543 - Revised January, 1983.
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PROGRAM INFORMATION

1. Program crop base _____
2. Acres diverted (line 1 x $\frac{\%}{100}$) _____
3. Acres in P/K (line 1 x $\frac{\%}{100}$ P/K) _____
4. Actual planted acres _____
5. Req. reduced acres (line 3 + 4 x $\frac{\%}{100}$) _____
6. Program yield _____
7. Program production (line 4 x line 6) _____
8. Expected yield _____
- 9a. Expected production (line 4 x line 8) _____
- 9b. Expected P/K bu. pymt. (line 3 x line 6 x $\frac{\%}{100}$) _____

INCOME

10. Grain returns (line 9a x \$ $\frac{\$}{bu.}$) _____
11. Div. payment (line 2 x line 6 x \$ $\frac{\$}{bu.}$) _____
12. Deficiency payment (line 7 x \$ $\frac{\$}{bu.}$) _____
13. P/K income (line 9b x \$ $\frac{\$}{bu.}$) _____
14. Other income or reduced costs _____
15. Total income (line 10, 11, 12, 13 + 14) _____

VARIABLE COSTS

16. Program crop
 - a. Fert. & crop (line 4 x \$ $\frac{\$}{A.}$) _____
 - b. Mch. fuel & rep. (line 4 x \$ $\frac{\$}{A.}$) _____
 - c. Dry and store (line 9 x \$ $\frac{\$}{bu.}$) _____
17. Cons. use (lines 2 + 3 + 5) x \$ $\frac{\$}{A.}$ _____
18. Other _____
19. Total costs (lines 16 + 17 + 18) _____

NET RETURNS OVER VARIABLE COSTS

20. Line 15 minus line 19 _____
- BREAK-EVEN PRICE NON PARTICIPATION
 21. (Part. Net line 20 - P/K Inc. line 13 + Non-part. Costs line 19) ÷ (Non-part. bu. prod. line 9a - P/K bu. line 9b) _____

BREAK-EVEN TOTAL P/K BID (% of Pgm. Yield)

22. (Net line 20 + Total P/K cost line 19 - D. Pymt. line 11) ÷ Price line 13 ÷ P/K Ac. line 3 ÷ Pgm. Yd. line 6 x 100 _____ %

_____ %

_____ %

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Prepared by R. A. Hinton, Extension Specialist, Farm Management, University of Illinois at Urbana-Champaign, AE-4543 - Revised January, 1983.

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Table 1. Net Crop Returns Over Variable Costs per Base Acre for Participation vs. Non Participation in 1983 Feed Grain Program for Corn

Price and Yield Situation	Not Participate	Participate RAP only	Participate 30% PIK	Participate Total PIK
Total Farm Low Prices ¹				
Lo Yield ²	\$ 84	\$148	\$162	\$171
Average Yield ²	146	210	201	171
High Yield ²	209	272	240	171
Total Farm Average Prices ¹				
Lo Yield ²	\$114	\$148	\$170	\$193
Average Yield ²	185	210	209	193
High Yield ²	257	272	248	193
Total Farm High Prices ¹				
Lo Yield ²	\$144	\$148	\$179	\$216
Average Yield ²	224	210	218	216
High Yield ²	305	273	257	216
50-50 Landowner ³	\$111	\$117	\$112	\$ 97
50-50 Tenant ³	\$ 76	\$ 92	\$ 96	\$ 97

¹ Price levels: Lo - \$2.30; Average - \$2.60; High - \$2.90.

² Yield levels: Lo - 100 bu.; Average - 130 bu.; High - 160 bu. vs. 120 bu. Program Yield; and Total PIK bid 70%.

³ Assumes 130 bu. yield @ \$2.60 market prices, \$2.65 loan and 120 program yield and Total PIK bid of 70%.

Table 2. Break-even Total Base PIK Bids Required for Equal Net Returns

Price and Yield Situation	Not Participate	Participate RAP only	Participate 30% PIK
(% of program yield)			
Total Farm Low Prices ¹			
Lo Yield ²	35	60	66
Average Yield ²	60	86	82
High Yield ²	85	111	97
Total Farm Average Prices ¹			
Lo Yield ²	41	53	61
Average Yield ²	67	76	75
High Yield ²	92	98	89
Total Farm High Prices ¹			
Lo Yield ²	47	48	58
Average Yield ²	72	68	70
High Yield ²	98	88	83
50-50 Landowner ³	80	84	80
50-50 Tenant ³	55	66	69

¹ Price levels: Lo - \$2.30; Average - \$2.60; High - \$2.90.

² Yield levels: Lo - 100 bu.; Average - 130 bu.; High - 160 bu. vs. 120 bu. Program Yield; and Total PIK bid 70%.

³ Assumes 130 bu. yield @ \$2.60 market prices, \$2.65 loan and 120 program yield and Total PIK bid of 70%.

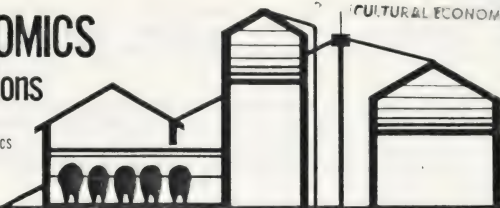


FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801

CULTURAL ECONOMICS



March, 1983

83-5/How Social Security Reform Would Affect Farmers

The National Commission on Social Security Reform has made its recommendations to the president, and legislation has been introduced in congress to implement these recommendations. Some of the proposed changes are of specific interest to farm operators and retired farmers.

RECOMMENDATIONS AFFECTING FARM OPERATORS

REVISED TAX SCHEDULE. The increase in the tax rate--from 5.4 to 5.7 percent--scheduled in 1985 would be moved to 1984 and would apply to both employers and employees. The 1985-87 rates would remain as scheduled under current law. Part of the 1990 rate would be moved up to 1988, but rates after 1990 would remain as scheduled. For 1984, a refundable income tax credit would be provided against the individual's federal income tax liability. This credit would be in the amount of the increase in the employee's taxes over what would have been payable under present law.

This change would add to the employment expense of those farm operators who now pay social security taxes for employees, although the expense would be deductible. The changes and present rates are shown in Table 1.

Table 1. Social Security Tax Schedule

Year	Employer and employee rate (for each)			
	OASDI*		OASDI-HI**	
	Present law %	Proposal %	Present law %	Proposal %
1983	5.4	5.4	6.7	6.7
1984	5.4	5.7	6.7	7.0
1985	5.7	5.7	7.05	7.05
1986	5.7	5.7	7.15	7.15
1987	5.7	5.7	7.15	7.15
1988-89	5.7	6.06	7.15	7.51
1990 and after	6.2	6.2	7.65	7.65

*Old Age, Survivor's, and Disability Insurance.

**Old Age, Survivor's, and Disability Insurance-Hospital Insurance.

TAX RATES FOR SELF-EMPLOYED PERSONS. The National Commission has recommended that beginning in 1984, social security tax rates for self-employed persons should be

equal to the combined employer-employee rate. This would be equal to 11.4 percent of net income as proposed by the commission. For tax purposes, one-half of the social security taxes paid by self-employed persons would be considered as a business expense.

Under current law, self-employed persons pay taxes at a rate that is approximately equal to 75 percent of the employer-employee rate and a hospital insurance tax at a rate that is 50 percent of the combined employer-employee rate. Self-employed persons cannot deduct any social security taxes paid as business expense under current law.

The increased tax for the self-employed, even though deductible as a business expense, adds to the costs of operating a farm business and reduces net incomes for individual self-employed farm operators.

DEFERRED RETIREMENT CREDITS. From 1990 to 2010, the present credit of 3 percent per year of increased benefits for delayed retirement would gradually be increased to 8 percent for individuals between the ages of 65 and 70.

The increased benefits would be an incentive for persons in good health to continue working and contributing to the system rather than withdrawing benefits.

COVERAGE OF STATE AND LOCAL GOVERNMENT EMPLOYEES. The commission has recommended social security coverage for employees of state and local government and nonprofit organizations and all new federal employees. Consequently, farmers who work for organizations that are not now covered would be affected although their total annual contributions would be limited to the maximum amount of earnings subject to the tax.

PROPOSALS AFFECTING RETIRED FARMERS

TAXATION OF BENEFITS. Beginning in 1984, half of the Old Age, Survivor's, and Disability Insurance (OASDI) benefits would be considered as taxable income for single persons with adjusted gross incomes above \$20,000 and for married persons with incomes above \$25,000, before the inclusion of the social security benefits.

For many retired farm owners and operators with income from farm or other investments, this provision would reduce benefits from social security. Some have criticized this provision because it tends to penalize those who have saved and invested in order to have additional income during their retirement.

COST OF LIVING ADJUSTMENTS. Beginning in 1983, adjustments in benefits would be delayed for six months and future adjustments would be made applicable to December checks payable in early January. Starting in 1984, adjustments would be based on cost of living changes each year, from third quarter to third quarter. If the ratio of funds available at the beginning of the year to expected payout during the year drops below 20 percent, then the cost of living adjustments may be based on the increase in wages or the consumer price index, whichever is lower.

The purpose of this change is to protect the fund from excessive withdrawals and to make an equitable balance between individuals working and paying into the system and those drawing benefits. In recent years, cost of living allowances based on the consumer price index resulted in social security benefits going up faster than the wages of those who were still working.

SPECIAL CONCERNS FOR WOMEN

The commission recognized the changing role of women in society. Specific recommendations were made (1) to continue paying benefits to widows (and widowers) who remarry after the age of 60; (2) to pay benefits to divorced spouses aged 62 or over; (3) to pay benefits to disabled widows (and widowers) at the same rate before and after the age of 60; (4) to continue deferred surviving spouse benefits, using an index based on the increases in wages after the death of the worker.

The commission pointed out that 65 percent of women between the ages of 20 to 54 are part of the labor force. Their benefits are greatly reduced if they leave the labor force temporarily for homemaking or child-caring. Family retirement and survivor benefits are also lower for couples consisting of two wage-earners than for couples with one wage earner and the same family earnings history. Homemakers have no individual coverage or eligibility for social security and consequently no independent credits on which to build, should they later take up employment.

GENERAL CONCERNS

The main objective of the proposed changes in the social security system is to keep the system financially sound. The commission concluded that from 1983-89 an additional \$150 to \$200 billion in income or decreased expenditure would be required to meet short-range needs. For the longer range of 75 years, the imbalance was equal to about 1.8 percent of taxable payroll. The commission made a single set of proposals to cover the short range. Long-range proposals covered only about 1.22 of the 1.8 percent deficit in the estimated long-range payroll. The additional changes could be made by gradually increasing the retirement age from 65 to 66 or increasing contribution rates in 2010 by 0.46 percent of covered earnings. The key to long-range solvency for the system will be to fit benefits to income. This may involve both increasing the revenues and decreasing the expenditures of the system.

Social security actuaries estimate the long-term deficit at about 2.09 percent of total income subject to social security payroll tax during the next 75 years. The discrepancy between this figure and that given by the commission occurs because social security actuaries used a lower birth rate projection and thus counted fewer workers paying into the system.

The Medicare trust fund, supported by portions of the payroll tax, dropped substantially last year and faces serious financial deficits in the future. The Social Security Reform Commission, however, did not deal with this future problem.

What if the proposed reforms are passed and yet do not succeed in keeping the social security system sound? Although the commission called for a fail-safe method by which benefits would continue being paid on time if adverse conditions were to arise, it could not agree on what method should be used. Some proposed methods included borrowing from the general fund of the treasury; issuing bonds to the general public; reducing the benefits payable; reducing the next benefit increase; or temporarily increasing tax rates or the maximum taxable earnings base.

CONCLUSIONS

The social security system cannot survive unless changes are made. Present benefits and cost of living adjustments have drawn upon the system more rapidly than tax revenues have increased since the act was passed by Congress in 1977.

For the system to continue providing benefits to millions of American families, including farmers, the crucial decision is to scale down benefits to match revenues. Otherwise the system will be forced to draw upon and compete for a share of general federal revenues. The system as we know it now would disappear and be replaced by a welfare program based on financial need.

The proposed changes all boil down to higher taxes and smaller benefits than many persons had been led to expect. But the alternative is a complete collapse of the system before many who are now paying into the system will draw any benefits. Even with the proposed changes, there is no guarantee that further adjustments will not be needed in the future.

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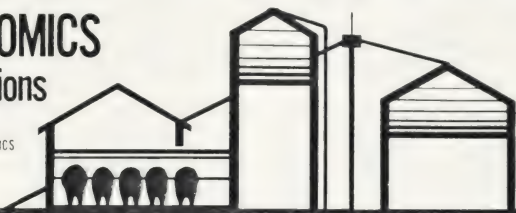
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



March, 1983

Valuing Farm Input Handbook
Section 5 - Number 2

83-6/Cost of Growing Corn and Soybeans, 1982

In 1982, the total cost per acre for growing corn averaged \$400 for northern Illinois, \$386 for the central section, and \$335 for southern Illinois. The soybean costs per acre were \$315, \$303, and \$257, respectively. The total crop costs per acre in southern Illinois were lower because of lower land costs than elsewhere in the state. (See the accompanying table.) The total costs per bushel were \$2.54 to \$2.80 for corn and \$6.59 to \$7.68 for soybeans. The variable costs per acre increased only 1-2% from 1981 for both corn and soybeans in central and southern Illinois but decreased 3-5% in northern Illinois. Variations in total costs were related to yields and to the quality of land.

The above figures were obtained from Illinois Farm Business Records kept by farmers enrolled in Illinois FBFB Associations. The samples included only farms of more than 260 acres on the more productive and nearly level soils in each area of the state; also, ones without livestock. Farms located in 22 counties on or north of the Illinois River are included in the sample for northern Illinois. Farms from 36 counties below a line from about Mattoon to Alton are in the sample for southern Illinois. The remaining 44 counties make up the sample for central Illinois. The sample farms in northern Illinois averaged 572 tillable acres, 601 acres in the central section, and 721 acres in southern Illinois.

This summary includes some factors that farmers consider as costs of doing business--but which some other sole-proprietor businesses may not. These factors are not used as expense items on income tax returns. Examples would include the labor charge for work done by the farm operator himself, a rent charge for use of all the land, (both owned and rented) and an interest charge on equity in the inventories.

NON-LAND COSTS. For soybeans, the soil-fertility costs were allocated on the basis of P, K, and lime removals, with the residual cost allocated to corn. The seed, crop, chemical, and drying expenses also included some commercial drying and storage and the estimated value of home-raised seed.

The machinery repair, fuel, and hire costs were reduced for fuel-tax rebates and custom work. The labor costs included the cash value of hired labor, plus a charge for available unpaid labor at a rate of \$1,075 per month. No added charge was made for management. The building and storage costs used were for repairs and depreciation only. The non-land interest charge in 1982 was 14 percent on the average of half the inventory value of crops at the beginning and at the end of the year plus the full undepreciated value of machinery and buildings, plus half the total operating expenses. Overhead costs included insurance, utilities, the farm share of automobile expenses, and miscellaneous items.

LAND COSTS. These included the adjusted net rent, plus the real estate taxes paid. Net rent was represented as the average received by crop-share landlords as reported on record-keeping farms for the 5-year period of 1977-1981. Caution is needed in interpreting differences in land costs between areas. In the long run, the changes in the net rent residual return to landowners should tend to equalize the total costs of production between areas.

COST PER BUSHEL. The very high yields in 1982 made the cost per bushel for corn lowest in central Illinois. The \$6.95 cost per bushel for soybeans was lowest in southern Illinois. With 1979-1982 average yields, the 1982 average non-land cost per bushel for all 1,330 farms was \$2.13 for corn and \$4.61 for soybeans. Average total cost per bushel for these same farms was \$2.93 for corn and \$7.09 for soybeans, excluding a charge for management. These costs might be considered threshold prices between which prices received might be expected to fluctuate when you assume these average yields and above average carryover supplies.

Costs per Acre for Growing Corn and Soybeans, 1982, Illinois Grain Farms with No Livestock

	Corn			Soybeans		
	North	Central	South	North	Central	South
Number of farms.	291	799	240	291	799	240
Acres in crop.	332	313	271	212	266	322
NON-LAND COSTS						
Variable costs:						
Soil fertility	\$ 56	\$ 57	\$ 56	\$ 17	\$ 17	\$ 17
Pesticides	21	19	22	16	17	17
Seed	18	19	18	13	13	12
Drying & storage	13	15	7	4	4	2
Repairs, fuel, & hire.	33	30	35	26	25	29
Total, variable costs.	\$141	\$140	\$138	\$ 76	\$ 76	\$ 77
Percent increase from 1981	-3	2	0	-5	1	1
Other non-land costs:						
Labor.	\$ 29	\$ 31	\$ 29	\$ 28	\$ 28	\$ 27
Buildings and storage.	15	9	11	9	5	6
Machinery depreciation	36	32	38	28	25	31
Non-land interest.	56	50	40	51	45	37
Overhead	14	11	9	14	11	9
Total, other costs	\$150	\$133	\$127	\$130	\$114	\$110
Total, non-land costs.	\$291	\$273	\$265	\$206	\$190	\$187
Percent increase from 1981	-1	1	0	-2	1	0
LAND COSTS						
Taxes.	\$ 20	\$ 21	\$ 10	\$ 20	\$ 21	\$ 10
Annually adjusted net rent	89	92	60	89	92	60
Total land cost.	\$109	\$113	\$ 70	\$109	\$113	\$ 70
TOTAL, ALL COSTS	\$400	\$386	\$335	\$315	\$303	\$257
1982 yields, bushels per acre.	143	152	128	41	46	39
Non-land cost per bushel	\$2.03	\$1.80	\$2.07	\$5.02	\$4.13	\$4.79
Total, all costs per bushel.	\$2.80	\$2.54	\$2.62	\$7.68	\$6.59	\$6.59

1979-82 average yield.	134	134	113	43	43	37
Non-land cost per bushel	\$2.17	\$2.04	\$2.35	\$4.79	\$4.42	\$5.05
Total, all costs per bushel.	\$2.99	\$2.88	\$2.96	\$7.33	\$7.05	\$6.95

NOTE: Below "dash" line, the entries shown are averages.

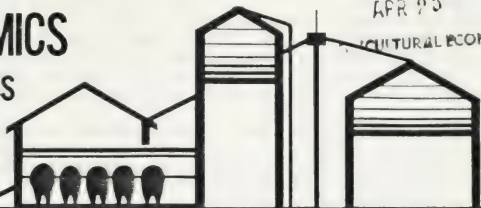
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April, 1983

83-7/Individual Income Taxes: *Impact of Past Federal Changes and Proposed State Increases*

INTRODUCTION

After holding steady for over a decade, the Illinois individual income tax rate may rise 1.5 points to 4 percent if current proposals are accepted. In addition, the corporate income tax, the gasoline tax, and liquor taxes will also increase. The projected additional receipts will bolster sagging state government revenues and provide about \$500 million in new monies to support state spending on education, transportation, corrections, and other state services. If state taxes increase, Illinois will join most other states (30 in 1981 and 29 in 1982) who have adjusted their tax rates to enhance state government revenues depressed by recession.

During the last six years, Illinois lawmakers have tried to provide significant tax relief for both individuals and business taxpayers. For example, the sales tax on food and drugs was cut from 4 percent to 2 percent. Farm machinery of \$1,000 or more is now exempt from sales tax. Most recently, the inheritance tax (except for the federal pick-up portion) was repealed. The result of this trend has been to reduce the state tax burden. In 1981 Illinois taxpayers paid \$60.80 in state taxes for each \$1,000 of personal income, compared with an average of \$67.99 for the ten most industrialized states and \$63.55 for the Great Lakes states.

At the federal level, the Economic Recovery Tax Act of 1981 set in motion federal income tax relief. The third and final adjustment in the federal income tax rates for individuals is scheduled for July 1, 1983. Sorting out the implications of the federal tax changes in combination with the proposed state tax changes for the individual income taxpayer is not a small task. The analysis presented here provides some information on the combined impact of the federal income tax relief and the proposed state income tax increase for a married couple with two dependents, filing a joint return.

FEDERAL INDIVIDUAL INCOME TAX RATES

Marginal income tax rates have been reduced by 23 percent for all income brackets by the recent federal legislation. The reduction began in 1981 and will be in full effect in the 1984 tax year. Table 1 contains the 1981-through-1984 tax rates for married individuals filing joint returns. Shown are the individual tax rates in each taxable income bracket. For example, a taxable income of \$12,000 for 1982 would be subject to \$1,253 in federal income taxes (that is, $[\$12,000 - \$11,900] \times 0.19 + \$1,234$). The standard deduction of \$3,400 is built into the tax rate schedules.

A comparison of the taxable income categories across the years shows that the federal rate reductions become increasingly larger as the income tax bracket increases. The effect of the 1981 act was to reduce marginal tax rates more at the higher levels of income. The maximum marginal rate was reduced from 70 percent to 50 percent after 1981. The rates for the \$20,200-to-\$24,600 and the \$7,600-to-\$11,900 brackets were reduced from 28 to 22 percent and from 18 to 14 percent, respectively.

In addition to the rate reductions, the maximum effective rate on individual capital gains was reduced from 28 percent to 20 percent after 1981. On incomes over \$100,000, the minimum tax rate was dropped from 25 percent to 20 percent. After 1984, the 1981 act provides for indexing of the following to the Consumer Price Index: (1) income tax brackets, (2) the zero bracket amount, and (3) personal exemptions. This will prevent taxpayers from being moved into higher tax brackets and from having lower after-tax income because of inflation.

ILLINOIS STATE TAXABLE INCOME

For a better understanding of the effect of the changes in federal marginal tax rates and the proposed hike in state income tax rate on individuals, state taxable income figures were constructed for each federal taxable income bracket. These figures are reported in Table 2 and apply to a married couple with two dependents. Separate figures are listed for the paired years 1981-1982 and 1983-1984 because part of the proposed state tax change is to raise the personal tax exemption by 10 percent in 1983 and by a like dollar amount in 1985. Thus for the 1983 and 1984 tax years, the personal exemption would be \$1,100 rather than the current \$1,000.

For state income tax purposes,

$$\text{taxable income} = \text{base income} - (\text{number of exemptions} \times \text{personal tax exemption}).$$

The *base income* is determined by using the federal adjusted gross income (AGI) for additions and subtractions. The additions include income that is not subject to federal taxation (e.g., interest earnings from state and municipal bond and all savers' certificates, capital gain deductions, and dividend exclusions). The subtractions are income sources taxed federally but not subject to the Illinois income tax (e.g., interest on U.S. treasury obligations, benefits from employee and retirement plans, and military pay). To determine the *base income* for each federal taxable income bracket, capital gain deductions and dividend exclusions were added to AGI, and retirement income was subtracted. While the exclusions of other additions and subtractions may reduce the precision of specific estimates, relative relationships are probably not severely distorted. The AGI for each federal taxable income brackets—from which the *base income* was determined—was estimated for the bracket midpoint after allowance was made for the average number of federal exemptions and excess itemized deductions.* The most current information on these items refers to 1980. Thus these adjustments are assumed to be constant from 1981 through 1984.

*The main data source for all adjustments was Internal Revenue Service, *1980 Statistics of Income: Individual Income Tax Returns*, Pub. No. 79(9-82), U.S. Department of Treasury (Washington, D.C., GPO, 1982).

Table 1. Federal Income Tax Rate Schedules for Married Individuals Filing Joint Returns

Taxable income	1981		1982		1983		1984	
	Pay plus percentage of excess ^a		Pay plus percentage of excess		Pay plus percentage of excess		Pay plus percentage of excess	
	\$	%	\$	%	\$	%	\$	%
0- 3,400	0	0	0	0	0	0	0	0
3,400- 5,500	0	14	0	12	0	11	0	11
5,500- 7,600	294	16	252	14	231	13	231	12
7,600- 11,900	630	18	546	16	504	15	483	14
11,900- 16,000	1,404	21	1,234	19	1,149	17	1,085	16
16,000- 20,200	2,265	24	2,013	22	1,846	19	1,741	18
20,200- 24,600	3,273	28	2,937	25	2,644	23	2,497	22
24,600- 29,900	4,505	32	4,037	29	3,656	26	3,465	25
29,900- 35,200	6,201	37	5,574	33	5,034	30	4,790	28
35,200- 45,800	8,162	43	7,323	39	6,624	35	6,274	33
45,800- 60,000	12,720	49	11,457	44	10,334	40	9,772	38
60,000- 85,600	19,678	54	17,705	49	16,014	44	15,168	42
85,600-109,400	33,502	59	30,249	50	27,278	48	25,920	45
109,400-162,400	47,544	64	42,149	50	38,702	50	36,630	49
162,400-215,400	81,464	68	68,649	50	65,202	50	62,600	50
215,400+	117,504	70	95,149	50	91,702	50	89,100	50

SOURCE: *Economic Recovery Tax Act of 1981* (Chicago: Commerce Clearing House), p.5.^aThe amount by which taxable income exceeds bracket base.

Table 2. Federal Taxable Income, Estimated Base, and Illinois Taxable Income for a Family of Four, 1981-82 and 1983-84

Federal taxable income Range	Median	Illinois taxable income ^b			
		Base income ^a	1981 and 1982	1983 and 1984	
\$	\$	\$	\$	\$	
0- 3,400	1,700	3,546	0	0	
3,400- 5,500	4,450	3,856	0	0	
5,500- 7,600	6,550	6,512	2,512	2,112	
7,600- 11,900	9,750	8,802	4,802	4,402	
11,900- 16,000	13,950	13,564	9,564	9,164	
16,000- 20,200	18,100	17,820	13,820	13,420	
20,200- 24,600	22,400	22,224	18,224	17,824	
24,600- 29,900	27,250	27,295	23,295	22,895	
29,900- 35,200	32,520	32,559	28,559	28,159	
35,200- 45,800	40,500	41,592	37,592	37,192	
45,800- 60,000	52,900	55,977	51,977	51,577	
60,000- 85,600	72,800	80,963	76,963	76,563	
85,600-109,400	97,500	109,444	105,444	105,044	
109,400-162,400	135,900	154,941	150,941	150,541	
162,400-215,400	188,900	216,826	212,826	212,426	
215,400+	250,000	289,217	285,217	284,817	

^aBase income estimated from adjusted gross income after adjustments for additions and subtractions.^bTaxable income equals base income less personal exemptions. For 1981 and 1982 the amount is \$1,000 per exemption; and for 1983 and 1984 the amount is \$1,100 per exemption.

FEDERAL AND STATE INCOME TAX

For each year—1981 through 1984—total state and federal income taxes were computed for the midpoint of each income bracket as reported in Table 1. The taxes were computed for a married couple with two dependents on the basis of a state rate of 2.5 percent for 1981 and 1982 and a proposed state rate of 4 percent for 1983 and 1984. The combined impact of the federal income tax relief (lower rates) and proposed hike in the state individual income tax rate is shown in Figures 1 and 2. Figure 1 shows the combined estimated state and federal income tax per \$1,000 of AGI for incomes through \$225,000. Figure 2 contains similar information but only for AGIs of \$60,000 or less. In 1981, the total tax liability ranged from zero for about \$4,800 AGI to \$469 per \$1,000 of AGI for incomes over \$200,000. These ranges for 1982, 1983, and 1984, in which the state tax rate of 4 percent was used for 1983 and 1984, were estimated at 0 to \$374, 0 to \$379, and 0 to \$366, respectively.

The estimated total income taxes are net. They were adjusted for the federal offset associated with the deductibility of state income taxes for federal income tax purposes. For example, in 1983 the estimated state income tax liability for a married couple with two dependents and \$22,400 in federal taxable income is \$713 on the basis of the 4 percent proposed state rate. The federal offset is the marginal federal tax rate times the state tax or, in this case, $0.23 \times \$713 = \$164$. The net state income tax is $\$713 - \$164$ or \$549. Adding this sum to the federal income tax gives us the total federal-state income tax estimate.

The impact of the reduced federal marginal tax rates are evident, particularly at the higher income levels where rate reductions were substantial. The proposed increase in the state tax rate to 4 percent will not offset the impact of the federal rate reductions in 1983 and 1984. As evident, the estimated total federal-state income tax liability for a married couple with two dependents is highest in 1981 and lowest in 1984. To illustrate, consider a federal taxable income of \$22,400. This income was subject to an estimated \$4,217 in federal-state income taxes in 1981 and \$3,829 in 1982. On the basis of the proposed state tax changes, the combined taxes are estimated to decline from \$3,699 in 1983 to \$3,537 in 1984.

IMPACT OF A 4 PERCENT STATE RATE

The adoption of the proposed 4 percent state income tax rate for individuals was shown to be offset by reduced federal income tax rates that resulted in declining total federal-state income tax liabilities through 1984. Higher state taxes combined with lower federal taxes, particularly in high income brackets, resulted in reduced total income tax liabilities. For a taxable income of about \$50,000, this reduction is estimated to be 18 percent between 1981 and 1984. However, without the proposed increase in the state income tax rate, the reduction is estimated at 21 percent. In absolute terms, this represents about \$500 less tax relief at this income level.

If the state individual income tax therefore is raised to 4 percent, Illinois individual income taxpayers will not experience as much income tax relief. Figure 3 demonstrates this difference for 1984 with 1982 data functioning as a benchmark. The lower 1984 line is federal-state tax with a 2.5 percent state rate, whereas the upper 1984 line is tax with a 4 percent state rate. Table 3 has detailed tax changes between 1981 and 1984 with an estimate, by taxable income bracket, of the reduction in income tax relief resulting from the adoption of a 4 percent Illinois income tax rate.

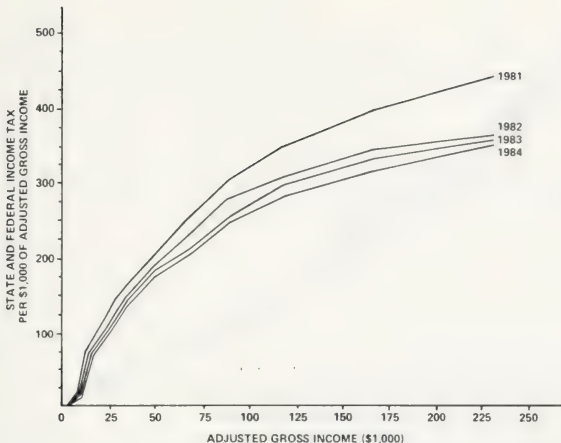


Figure 1. Illinois state and federal income tax per \$1,000 of adjusted gross income for married couple with two dependents.

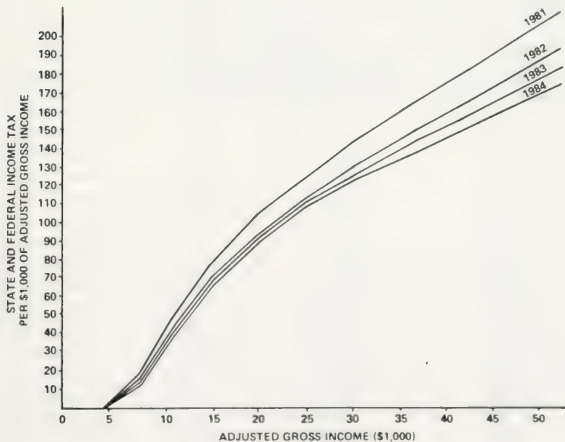


Figure 2. Illinois state and federal income tax per \$1,000 of adjusted gross income under \$60,000 for married couple with two dependents.

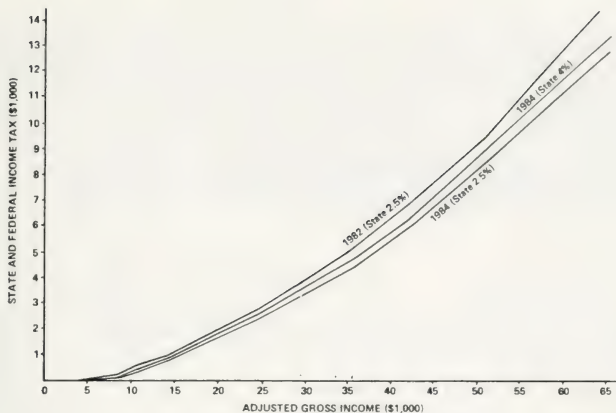


Figure 3. Illinois state and federal income tax with state tax rates at 2.5% and 4% for 1984, for married couple with two dependents.

Table 3. Estimated Change in Total State and Federal Income Tax by Taxable Income with a 2.5 percent and a 4 percent Illinois Income Tax Rate^a

Federal taxable income	Estimated federal-state income tax change, 1981-1984		Reduced tax relief with 4% state rate
	2.5% state rate	4% state rate	
\$	\$	\$	\$
0- 3,400	0	0	0
3,400- 5,500	-31	-31	0
5,500- 7,600	-103	-83	20
7,600- 11,900	-228	-180	48
11,900- 16,000	-410	-303	107
16,000- 20,200	-620	-473	147
20,200- 24,600	-880	-680	200
24,600- 29,900	-1,185	-934	251
29,900- 35,200	-1,594	-1,297	297
35,200- 45,800	-2,324	-1,957	367
45,800- 60,000	-3,587	-3,113	474
60,000- 85,600	-5,818	-5,154	664
85,600-109,400	-8,879	-8,018	861
109,400-162,400	-14,173	-13,177	996
162,400-215,400	-22,676	-21,088	1,588
215,400+	-33,898	-31,767	2,131

^aFor a married couple with two dependents. Computed for the median income of each income bracket using federal tax rates for 1981 and 1984.

SUMMARY

If the proposed state tax increases are adopted by the state government, Illinois will join the majority of states that have shored up recession-plagued state tax revenues through rate changes. The impact of adopting the proposed 4 percent state income tax rate for Illinois individual income taxpayers will be a reduction in the tax relief provided by the federal tax rate changes adopted in 1981. But although the precise implications vary with income, in general, federal-state individual income taxes will be lower in 1984 than in previous years. If the 4 percent state rate is adopted, income tax relief between 1981 and 1984 is estimated to average about 18 percent. With the current 2.5 percent state individual income tax rate, income tax relief provided between 1981 and 1984 will be about 3 percent higher at 21 percent.

David L. Chicoine

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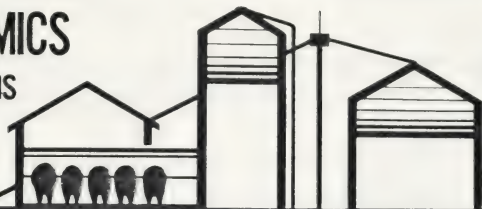
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



May, 1983

83-8/High Production Efficiency Pays Off for Hog Producers

The Illinois farrow-to-finish hog producer with average efficiency just about broke even in the five-year period from 1978 through 1982. Actually, producers realized a return of 64 cents above all costs per market hog to cover management, risk, and uncertainty. The years 1978 and 1982 were profitable years for hog producers, while the 1979-to-1981 period was what might be described as an economic nightmare, with average losses ranging from \$14 to \$20 per market hog for all producers.

In order to show the effect of efficiency on net hog returns, the sample of enterprise records used in the study was divided into three groups based upon returns per \$100 of feed fed. The three groups represented average, high, and low levels of production efficiency.

The high-efficiency group (approximately one-third of all farms) had a return of \$11.89 above all costs per market hog to cover management, risk, and uncertainty for the 1978-to-1982 period. During the same period, the low-efficiency group failed to cover total costs by \$15.30 per market hog. The difference in net returns between the high- and low-efficiency groups was \$27.19 per market hog.

The data in Table 1 show that there was a significant difference between the high- and low-efficiency groups in pigs weaned per litter, litters farrowed per female year, and death loss. These management factors, plus others such as general herd health and genetic quality, are reflected in feed conversion. In hog production, feed conversion is defined as the number of pounds of feed required to produce 100 pounds of liveweight. It is the bottom-line measure of overall production efficiency.

The average feed conversion for all farms in this study was 410 pounds of concentrates per 100 pounds of liveweight. The high-efficiency group required only 368 pounds as compared with 477 pounds for the low-efficiency group, a difference of 109 pounds.

The feed cost for all farms averaged \$26.95 per 100 pounds of liveweight produced as compared with \$23.46 and \$31.97 for the high- and low-efficiency groups, respectively. The difference between the latter two groups was \$8.51. Approximately \$6.93 of this difference is attributed to better feed conversion; the balance is due to the lower cost per ton of commercial feeds that were included in the ration fed on the high-efficiency farms.

If we assume no difference in nonfeed costs, the lower feed cost of \$8.51 and higher total returns of \$3.31 per 100 pounds of liveweight produced provide a return-to-management advantage of \$11.82 (\$-6.65 + \$5.17) for the high-efficiency farms. This advantage is equal to \$27.19 for each 230-pound hog marketed. For a 1,000-head farrow-to-finish operation, a producer in the high-efficiency group would have earned \$27,190 more annually than an average producer in the low-efficiency group. This amounts to more than a quarter of a million dollars in a ten-year period.

The key lesson to be learned from this analysis is that every hog producer should determine the level of production efficiency in his operation so that he can realistically evaluate his potential for profit and prospects for staying in business. It is especially important

for producers who are considering expansion and for potential newcomers to the business to budget carefully by using reasonable projections of input requirements and the efficiency level that can be maintained.

This study shows the effect of production efficiency on net hog returns. The high-efficiency hog producer will have more money for debt servicing, improved family living, and reinvestment than the average or below-average producer. Would an investment in hog production be profitable? The answer may depend on the production efficiency of the operation being planned.

Table 1. *Costs and Returns for the Farrow-to-Finish Hog Enterprise in Illinois by Level of Efficiency, 1978-1982*

	All farms	High-efficiency farms	Low-efficiency farms
Number of farms	800	274	276
Average per farm			
Number of litters	140	155	104
Pigs weaned per litter	7.2	7.3	6.9
Litters farrowed per female year	1.65	1.71	1.53
Pigs weaned per female year	12.02	12.67	10.71
Death loss: percent of weight produced	1.9	1.6	2.1
Pounds of feed per 100 pounds produced			
Farm grains	324	293	374
Commercial feeds	86	75	103
Total concentrates	410	368	477
Cost per 100 lb. of commercial feeds	\$ 13.96	\$ 13.41	\$ 14.39
Cost per 100 lb. of concentrates	\$ 6.54	\$ 6.36	\$ 6.68
	<i>per 100 lb. of liveweight produced</i>		
Total returns	\$ 44.57	\$ 45.97	\$ 42.66
Feed costs	26.95	23.46	31.97
Return above feed costs	\$ 17.62	\$ 22.51	\$ 10.69
Estimated nonfeed costs ^a	17.34	17.34	17.34
Return to management	\$.28	\$ 5.17	\$ -6.65
	<i>per market hog^b</i>		
Return to management	\$.64	\$ 11.89	\$ -15.30

^aAssumed to be the same for all farms.

^bAssumes a 230-pound market hog.

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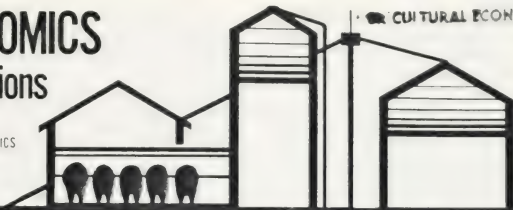
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FARM ECONOMICS

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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



RECEIVED

MAY 1983

CULTURAL ECONOMICS

May, 1983

83-9/Farm and Family Sources and Uses of Dollars, 1979-1982, Illinois Farms

Total noncapital expenses for family living of farm operators within a group of 195 recordkeeping farms in central Illinois averaged \$22,300 or \$1,858 per month per family in 1982. (See the accompanying table.) This was 1.6 percent higher than in 1981 and 10 percent above the figure for 1979. Another \$2,344 was used to purchase capital items, such as the personal share of the family automobile, furniture, household equipment, and the like. Thus, the grand total for living expenditures averaged \$24,644 for 1982 compared to \$25,912 for 1981 for a \$1,268 decrease per family. This decrease resulted from a 40% cut in dollars spent for family capital items.

How farm operator families use their funds may depend on the level of the net farm income and the priority of the expenditures. Except for hog farms, net farm incomes have remained at low levels the past two years. While higher non-farm taxable income, largely from money-market investments, and lower income taxes helped to pay the higher interest bill in 1982, they were still some \$2,000 short of covering the increase in interest paid. Cash operating expenses per acre went up 10 percent, the same amount as farm receipts. The end result was to hold expenditures for living and capital items down wherever possible. These facts are reflected in the accompanying table.

In 1982, the operators of the 195 farms in the study averaged 42 years of age. They averaged 3.7 members per family with age of oldest dependent child being 10 years of age. They farmed 606 tillable acres, of which 122 acres (20 percent) were owner-operated. They were cooperators in the Farm Business Farm Management (FBFM) Association, located primarily in central and south-central Illinois. They kept records so that all sources of funds, both farm and non-farm, balanced with all uses of funds in a complete monthly cash-flow accounting system. These farms contained 76 more tillable acres than the average of all of the recordkeeping farms in the state. Management was also considered to be slightly above average on the 195 farms. It is estimated that these factors can produce 10 to 15% more earnings to be available for living than the average of all the recordkeeping families.

The table shows a comparison of the averages for the total family-living expenses for five categories per farm for each year 1979-1982. "Living expendables" included food, operating expenses, clothing, personal items, recreation, entertainment, education and transportation. The value of farm-furnished meat amounting to an estimated \$200 average per farm and the use value of the house on an estimated 40 to 50 percent of the full-tenant operated farms in this sample are not included, since these data cover only cash outlays. The excess of non-farm taxable income over non-farm business expense of \$8,202 (\$11,552- \$3,350) in 1982 was 33 percent of the total for all living expenses. This income includes dividends on stock, interest on savings and money market funds, income from other non-farm investments, and income from off-farm work performed by the wife.

Farm and Family Sources and Uses of Dollars, Average per Family, 1979 to 1982, and Average Living Expenditures, 1982, High-Third and Low-Third Families, 195 Recordkeeping Farms, FRFM, Central Illinois

	All records, average per farm				Family of 3 to 5, 1982	
	1982	1981	1980	1979	High-third	Low-third
NUMBER IN SAMPLE	195	132	178	206	47	47
TILLABLE ACRES FARMED	606	590	602	596	686	532
ACRES OWNED	122	106	120	140	123	130
LIABILITIES, JANUARY 1	\$210,515	\$170,376	\$154,467	\$164,604	\$283,009	\$186,856
LIABILITIES, DECEMBER 31	227,064	188,411	176,889	204,714	313,888	202,196
SOURCES OF DOLLARS						
Nonfarm taxable income	\$ 11,552	\$ 8,747	\$ 6,620	\$ 6,537	\$ 16,858	\$ 11,504
Money borrowed	120,741	110,019	101,424	134,584	163,301	104,544
Farm receipts	149,695	136,447	140,892	147,324	172,591	128,899
USE OF DOLLARS						
Interest paid	\$ 22,644	\$ 16,619	\$ 14,359	\$ 12,497	\$ 33,447	\$ 17,555
Cash operating expenses	90,769	80,284	83,684	87,549	101,034	84,054
Capital farm purchases	21,988	22,232	18,155	31,093	32,974	15,933
Payments on principal	104,192	91,983	79,002	94,474	132,047	88,992
Income and Social Security taxes	4,802	6,008	6,130	8,425	4,782	3,056
Net new savings and investment	9,599	8,194	21,171	28,199	11,046	14,203
Nonfarm business expenses	3,350	3,981	3,003	2,733	2,687	4,170
LIVING EXPENSES						
Contributions	\$ 1,095	\$ 1,136	\$ 1,142	\$ 1,075	\$ 1,556	\$ 825
Medical	2,656	2,221	2,219	1,973	3,166	2,073
Insurance, life and disability	2,021	1,863	1,651	2,345	3,479	1,163
Expendables	16,528	16,782	16,193	14,924	23,527	11,314
Total noncapital expenses \$	\$ 22,300	\$ 21,948	\$ 21,205	\$ 20,317	\$ 31,728	\$ 15,375
Capital	\$ 2,344	\$ 3,964	\$ 2,227	\$ 3,169	\$ 3,005	\$ 1,609
Total, living expenses	\$ 24,644	\$ 25,912	\$ 23,432	\$ 23,486	\$ 34,733	\$ 16,984
TOTAL, NONCAPITAL LIVING EXPENSES, PERCENT CHANGE:	1.6	3.5	4.3	11.7	...	...

In this group of 195 farms, the most significant observation for 1982 was the apparent need to reduce expenditures wherever possible to compensate for increased cost for items purchased, especially interest. Interest was the highest single farm expense item. It was \$8,000 above the next highest item which was fertilizer. This includes interest paid on both operating and real estate debt. Interest paid has increased from 12% of total farm operating expense in 1979 to 20% in 1982. To maintain operations it appears farm operators held down new investment expenditures and increased the use of borrowed money. The \$227,064 total liabilities outstanding at the end of the year was 7.9 percent higher than at beginning of year.

The records from farm families with 3 to 5 persons were sorted into high and low-third categories according to the noncapital living expenses. The total living expenses for the high-third group averaged \$34,733 compared to \$16,984 for the low-third group. The high-third group farmed 154 more acres than the other group and owned 18 percent of the land farmed; the low-third group owned 24 percent of the land farmed. The larger farms provided higher taxable incomes. The results were more income taxes paid, higher living expenses, higher payments on debt principal, and twice the dollars for capital purchases.

In 1982, the average operator in the all farms sample borrowed \$199 during the year for each tillable acre farmed. This compares with \$168 in 1980 in the same sample. The low one-third living cost group, which included younger farmers averaging 38 years of age, averaged borrowing \$197 for each tillable acre farmed. The business of farming is involving considerable amounts of borrowed capital in relation to annual operating expenses.

When high interest rates are combined with uncertain markets and crop production on highly specialized farms, it is important that more farmers learn how to balance and monitor their cash flows each month. Farmers who learn to do this will gain confidence in making financial management decisions that are timely and sound. For low equity operators this may mean the difference between success or failure. The data summarized in this study may serve as a guide in budgeting allowances for family living expenses. The total family living expense for families in the sample was \$41 for each tillable acre farmed. Each family must determine how much each acre of corn, soybeans, or each litter should contribute to their family living budget in order to determine breakeven prices needed.

D. F. Wilken

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FARM ECONOMICS

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DEPARTMENT OF AGRICULTURAL ECONOMICS
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June, 1983

83-10/Supporting Dairy Products: A Policy Dilemma

One of the most difficult agricultural and food policy decisions that Congress and the Executive Branch face this year deals with supporting the price of milk. Since 1949, the milk support price has been maintained when necessary by government purchases of butter, nonfat dry milk powder, and American cheese from processors.

The original objective of the dairy program was to assure an adequate supply of dairy products at reasonable prices to consumers. To meet this objective, it was necessary for dairy producers to receive a return that would allow them to maintain production.

From 1949 to 1977, legislation required that the price of milk be supported between 75 to 90 percent of parity, adjusted annually. Then the Food and Agriculture Act of 1977 increased the minimum support level to 80 percent of parity, with semi-annual adjustments. By 1981, as program costs and government acquisitions increased substantially, policy makers recognized that a change was needed.

The upward price support adjustment that would have occurred on April 1, 1981, was cancelled, and the support was maintained at the current rate of \$13.10. The 1981 Agricultural and Food Act set the minimum price support for the 1982 fiscal year at the same rate. For 1983 to 1985, the level of support was to be adjusted slowly upward. If the cost of government price support purchases was less than \$1 billion, the support rates would rise more rapidly.

By early 1982, it was evident that the dairy support provisions in the 1981 Act were not adequate to reduce government purchases and costs. Various proposals were made, but agreement could not be reached between producer and consumer interests. Finally, a compromise was reached. Producers would be assessed 50 cents per hundred pounds of milk sold, effective October 1, 1982; a second 50-cents assessment was to take effect on April 1, 1983, with a special refund for those producers who cut back production.

The assessment was very unpopular with producers. A Federal Court judge in South Carolina blocked the first assessment on the basis that the U.S. Department of Agriculture had not used proper rule-making procedures to announce the assessment. Following a revision of the rule-making procedures, the USDA announced that the assessment would begin on April 16, 1983. Again, the same Federal Court judge placed an injunction on collecting the assessment until May 25, when the issue would be reexamined.

USDA must continue to support manufacturing milk at \$13.10 and producers have no restrictions on how much they can produce at this support rate.

THE PRODUCTION DEMAND AND SUPPLY PICTURE

From 1978 through 1982, milk cow numbers increased 2 percent, output per cow increased 10 percent, and total milk production increased 12 percent. The average price received by farmers for all milk sold increased 28 percent, the minimum support for manufactured milk rose 39 percent, and government acquisitions, in terms of milk equivalent, rose 521 percent. The government acquisitions of dairy products were equal to about 11 percent of total production in 1982.

From 1978 through 1981, the average civilian per capita consumption of milk remained practically unchanged. Commercial disappearance during 1982 rose about 1.6 percent. Net government expenditures for the support program were \$446.4 million in fiscal year 1978. For fiscal year 1983, which ends September 30, the estimated net expenditure will be \$2,695 million. Details are given in Tables 1 and 2.

Giving away the excess government stocks will not solve the problem without creating new ones. This year the government is expected to acquire about 14 billion pounds of milk equivalent. This is twice as much as the government will likely donate in all of its dairy disposal programs. There also is a limit to the amount of free cheese that the government can give away before it begins to affect commercial sales.

THE POLICY CHOICES

From a policy perspective, the present program to support milk prices has gone beyond its original objective to maintain an adequate supply of dairy products. Consumers are paying higher prices than they would if support prices were lower. Income to milk producers has been fairly stable.

The objective of any dairy price support program at this time is to assure adequate and stable supplies of dairy products for consumers and reduce government stocks and costs.

The most frequently discussed alternatives are:

1. Reducing the price support level under the existing program.
2. Direct payments to farmers.
3. Supply control.
4. Adjustments in classified pricing.
5. Incentive payments.

REDUCING THE PRICE SUPPORT LEVEL. This approach would lower the price received by farmers and the prices paid by consumers. It is expected to increase the demand for milk and dairy products and decrease government acquisitions. The difficult policy decision would be determining a price support that is high enough to assure production of adequate and stable milk supplies.

DIRECT PAYMENTS TO FARMERS. This approach might involve a target price that is similar to that established for grains, with deficiency payments to make up the difference between the target price and actual market price. To qualify for deficiency payments, producers would be required to reduce production or market milk within an assigned quota. This approach could serve consumer and producer needs but prove costly to taxpayers.

SUPPLY CONTROL. Milk producers, unlike other commodity producers, are not now required to control production in order to qualify for price supports. Milk supply control proposals are complex and might involve quotas on production and sales, limits on the number of cows in the herd, or restrictions on feed inputs.

Some dairy groups favor strict supply control through the establishment of production bases for each dairy operation. Other groups oppose this approach. Administration of supply control programs are complicated and involve more interference with the farm business than most dairy farmers would like.

Quotas also tend to freeze existing patterns of production unless they are transferable. Transferable quotas acquire value and provide windfall gains to the original holders. Quotas can become an additional cost for farmers entering dairying or for present producers who want to expand. Such a program shifts the primary cost from taxpayers to consumers.

ADJUSTMENTS IN CLASSIFIED PRICING. Federal and state milk marketing orders use a classified pricing plan in setting prices for Grade A milk in most parts of the country. The dairy price support program sets a floor under the formula pricing of milk under state and federal orders. Since milk in fluid uses is priced at a higher rate than milk going into manufacturing uses, a lower price could be set for fluid use and the same price for manufacturing uses. Although taxpayers and fluid milk consumers might benefit from these adjustments, cash receipts for dairy farmers would be lower.

INCENTIVE PAYMENTS. One incentive plan combines the current support program on manufacturing milk, the current 50 cents per hundred assessment, and an incentive payment of \$10 for each hundred pounds that milk producers reduce output below 1982, providing that they cut production by at least 5 percent. The backers of this plan argue that the incentive payment and reduced expenses would more than offset the loss in income from reduced production. This plan is expected to cut price support costs from more than \$2 billion to less than 500 million by 1985 and reduce surplus stocks from about 14 to less than 3 billion pounds.

Current program proposals being seriously considered in the U.S. House and Senate Agricultural Committees involve combinations of alternatives one, two, three, and five.

CONCLUSIONS

Dairy farmers will need to make decisions about future production and marketing as they face some further modification of the federal dairy price support program. If an incentive payment tied to reducing production below the 1982 production level is approved, dairy farmers could find this a profitable and worthwhile program. Unless enough farmers voluntarily participate in a production cutting effort, price support levels could be dropped \$2 to \$3 below present rates to bring down the government acquisition of dairy products. Lower returns to milk producers will result.

Efforts to raise prices without increasing the demand or reducing the supply can result in a buildup of excessive stocks. This is what has happened to milk and milk products. Policy makers for milk price support programs, like those for grain, must recognize market forces in setting support levels or eventually face up to the need to correct the imbalance between supply and demand.

Most price support programs work best when they are not overused and do not disrupt normal markets. The dairy price support program, through government purchases, has brought a major cost to the federal budget at a time of record high deficits. Agreement on future policy will require compromise on both sides of the issue. Otherwise the least desirable alternative for many dairymen--complete elimination of the support program--could result.

Table 1. Milk Production, Prices, and Demands, 1978-83

Calendar year	Milk production (mil. lb.)	Cows numbers Jan. 1 (000)	Output per cow (lb.)	Average price received by farmers (per cwt.)	Average per capita disappearance (lb.)
1978	121,461	10,896	11,243	\$10.58	545
1979	123,411	10,790	11,488	12.00	548
1980	128,525	10,779	11,889	13.00	544
1981	133,013	10,860	12,177	13.75	543
1982	135,795	11,012	12,316	13.55	562
1983		11,066			

Table 2. Milk Support Price, Government Acquisitions, and Net Expenditures

Year	Government acquisitions (mil. lb.)	Net expenditures* (millions)	Support price	
			(date)	(per cwt.)
1978	2,743	\$ 446.4	4/1	\$ 9.43
1979	2,119	272.9	4/1	10.76
1980	8,800	1,011.1	4/1	12.36
1981	12,861	1,893.8	10/21	13.10
1982	14,287	2,182.2	10/1	13.10
1983		2,695 (est.)	4/1	13.10

*Fiscal year ending September 30

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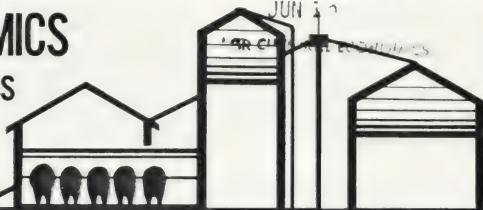
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URBANA, ILLINOIS 61801



June, 1983

83-11/Land Prices Have Strengthened

Land prices in Illinois probably reached their low point in December, 1982. According to the Federal Reserve Bank of Chicago, prices began declining in the summer of 1981. This decline followed a long and persistent increase that continued from 1933 to 1981, almost 50 years, with the exception of a couple of minor one-year declines. Prices declined about 6 percent in 1981, then dropped 18 percent in 1982, a total decline of over 20 percent from the high. The real decline exceeded 30 percent, if we take into account the consumer price index that has continued to rise over the last two years. This is more than the real decline from 1929 to 1933, because the Consumer Price Index declined along with land prices during that period.

The Federal Reserve Bank's latest survey revealed an increase of 4 percent from January 1 to April 1, 1983. This is a significant increase, as perceived by the commercial bankers who were surveyed by the Bank in the 12th reserve district. The land market is carefully watched through sale reports and contacts with auctioneers, real estate brokers, and the Illinois Farm Land Institute, the professional organization for farmland brokers. My impression also is that prices have firmed up since last fall. This strength is shown in the market by increased sales at prices that appear to be from \$100 to \$300 more per acre than they were only four months ago. There is clearly increased activity in the market—more investors and farmers are now interested, whereas a year ago there were almost no buyers to be found, regardless of the price.

The USDA Economic Research Service recently announced the results of its annual land price survey, which showed a decline of 11 percent in Illinois prices from April 1, 1982, to April 1, 1983. The survey only shows an 11 percent decline because the index change is not made on a calendar-year basis and consequently does not show the decline occurring in the first quarter of 1982. The index does show the increase in the first quarter of 1983, however, revealing a net decline that is less than many had expected. All the land in an area as large and as diverse as Illinois is not going to be affected by economic events in the same way. The dairy areas of northern Illinois, St. Louis, and Effingham and the hog areas of northwestern and western Illinois have not experienced as much decline as the cash grain areas of central and east central Illinois because the hog and dairy farms have had a better income relative to cash grain over the last year or two. This is why a statewide land price index needs to be used with some caution. The following table gives the USDA land price index for Illinois, starting with 100 in 1977:

Economic Research Service, USDA Land Price Index for Illinois							
Year ¹	1977	1978	1979	1980	1981	1982	1983
Index	100	111	125	135	144 ²	131	117

¹The date of the index was February 1, 1976 through 1981, and was changed to April 1 in 1982.

²The index for 1981, which was published originally as 143, was changed to 144 by USDA this year.

The USDA data show that land prices have now slipped back to about 1978 levels. The question uppermost in the minds of people who are potential buyers or sellers of farmland is what has caused the recent turnaround in land values and where do we go from here?

The U.S. government payment-in-kind (PIK) program, the most aggressive wheat and feed grain program instituted by the government since 1934, has increased grain prices and significantly

changed the psychology and outlook of corn and wheat farmers and investors in farmland. Farmers are generally more optimistic now about the future, and this optimism is reflected in the land market. Another factor affecting the land markets has been the decline in interest rates. At the land-price high, some of the insurance companies had fixed rate land mortgages of 18 percent or higher. This has declined by about 30 percent, reducing the cash flow needed to service the same size mortgage. Variable interest rates of the Federal Land Bank of St. Louis, which serves Illinois, reached a high of 13.75 percent before stock and service points. This has now declined to 11.75 percent with an associated reduction in points. If all other factors remained the same, the reduction in interest rates should have caused land prices to rise.

Will land prices continue to increase, stabilize at current levels, or decline? If interest rates drop even lower, which is possible, land prices will continue to strengthen. The continuance of government grain price support programs is an important factor. As long as demand and foreign exports remain weak, commodity prices will slip lower without government supports, resulting in lower income for farmers, a lower rate of return on land, and lower land prices. The future direction of land prices remains uncertain. For land owners who have decided to sell, for whatever reason, but have been holding because of depressed prices, this year might be a good time to try to sell. At the current market price of land, the rate of return on most farmland would be less than half the current return on government bonds. It is risky to assume that the difference in return will be made-up by capital gain in land value, at least in the next few years.

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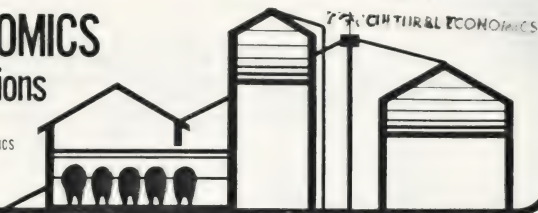
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June, 1983

Valuing Farm Input Handbook
Section 12, Number 2

83-12/Farrow-to-Finish Hog Producers Show a Profit in 1982

Improved market hog prices and lower feed costs increased profits from Illinois farrow-to-finish hog enterprises in 1982 by \$17.35 per hundredweight produced above those profits received in 1981. However, for the five-year period from 1978 through 1982, costs and returns were equal or break-even.

The total cost of production in 1982 averaged \$46.95 per 100 pounds of pork produced as compared with \$48.59 in 1981 (Table 1). Feed costs made up 57 percent of the total, or \$26.85. The 1981 feed costs averaged \$30.11. Nonfeed costs accounted for \$20.10, an increase of \$1.62 over 1981. With total returns averaging \$57.05 per 100 pounds of pork, the average producer in this group received a margin of \$10.10 for risk and management in 1982. The 1981 return above all costs was a negative \$7.25. 1982 was the first year since 1978 that the average producer in this study covered all production costs.

This analysis of farrow-to-finish hog producers is based on 149 specialized commercial hog farms in Illinois. These farms produced an average of 274 litters per farm. On the sample farms, more than 75 percent of the value of crop production was fed to hogs. This degree of intensity in hog production indicates a commitment of major resources to the enterprise. The producers in the sample group probably exercised a higher level of management and used more confinement-production facilities than the average Illinois hog producer.

Total farm production costs were allocated to crops or to the hog enterprise. Hogs were the only livestock enterprise on the sample farms. Average grain-farm costs for 1982 were used to establish the crop costs, with the balance of the total farm costs allocated to the hog enterprise.

FEED COSTS

The average feed cost of \$26.85 per 100 pounds of pork produced included the value of 321 pounds of farm grains (the equivalent of 5.7 bushels of corn) and 90 pounds of commercial feeds. In the analysis, a uniform price of \$2.43 per bushel was used for corn. Commercial feeds were charged at cost. The average price paid by all the producers was \$14.55 per hundredweight.

NONFEED COSTS

The average of \$20.10 for nonfeed costs included maintenance costs and depreciation charges for buildings, machinery, and equipment—all of which totaled \$7.90 per 100 pounds of pork produced. The average labor cost of \$3.62 included charges for available unpaid labor at the rate of \$1,075 per month and wages paid to hired labor. The interest charge of \$5.77 for all capital included charges for investments in buildings, equipment, hogs, and feed inventories at 14 percent and investments in land at 2.8 percent.

SIZE-OF-ENTERPRISE RELATIONSHIPS

The records for the hog enterprises reported in Table 1 were divided into groups according to the number of litters produced. The group farrowing under 250 litters for the year averaged 141 litters. The group farrowing 250 or more litters averaged 425 litters.

Table 1. Costs and Returns for the Farrow-to-Finish Hog Enterprise in Illinois by Size of Enterprise, 1982

	Average number of litters per year		
	All	Under 250	250 or more
Number of farms	149	79	70
Average per farm			
Number of litters	274	141	425
Returns per \$100 of feed fed	\$216	\$210	\$222
Pigs weaned per litter	7.5	7.4	7.5
Death loss: percent of weight produced	1.9	1.9	1.8
Pounds of feed per 100 pounds produced			
Farm grains	321	323	319
Commercial feeds	90	93	87
Total concentrates	411	416	406
Cost per 100 lb. of commercial feeds	\$ 14.55	\$ 15.07	\$ 13.97
Cost per 100 lb. of concentrates	\$ 6.54	\$ 6.68	\$ 6.39
per 100 pounds of pork produced			
Total returns ^a	\$ 57.05 (41.34)	\$ 57.34	\$ 56.72
Feed costs ^a	26.85 (30.11)	27.70	25.89
Return above feed costs ^a	\$ 30.20 (11.23)	\$ 29.64	\$ 30.83
Nonfeed costs			
Machinery and equipment	\$ 4.49	\$ 4.53	\$ 4.45
Buildings	3.41	3.25	3.59
Labor	3.62	3.78	3.45
Livestock expense	1.90	1.89	1.90
Insurance, taxes, and overhead	.91	.90	.93
Interest charge on all capital	5.77	5.90	5.62
Total nonfeed costs ^a	\$ 20.10 (18.48)	\$ 20.25	\$ 19.94
Total all costs ^a	\$ 46.95 (48.59)	\$ 47.95	\$ 45.83
Return above all costs ^{a,b}	\$ 10.10 (-7.25)	\$ 9.39	\$ 10.89

^aFigures in parentheses are for 1981.

^bNo charge was made for management.

The total cost of production per 100 pounds of pork produced averaged \$2.12 less for the large enterprises than for the small ones. The most significant cost difference between the two groups of farms was seen in the average feed cost per 100 pounds of pork produced, which was \$1.81 lower for the large enterprises than for the small ones (\$27.70 compared with \$25.89). The better feed conversion and the lower price paid for commercial feeds contributed about equal amounts to the lower feed cost. Other production variables, such as the number of pigs weaned per litter and the rate of death loss, were not significantly different.

The difference between the two groups in nonfeed costs was only 31 cents per 100 pounds of pork produced. Building, machinery, and equipment costs in 1982 were about 3 percent higher for the large enterprises than for the small enterprises. These higher costs were offset by a lower labor cost of nearly an equal dollar amount, indicating better labor utilization on the farms with large enterprises.

The returns above all costs averaged \$9.39 per 100 pounds of pork produced for the small enterprises and \$10.89 for the large ones, a difference of \$1.50. Marketing and income accounting practices provided a return advantage of 62 cents in favor of the smaller enterprises, while the larger enterprises had a total cost advantage of \$2.12. Other management practices, such as the choice of building systems, method of transporting hogs to market, and on-farm versus off-farm systems for feed processing, may have affected the individual

cost items reported in Table 1. However, the return above all costs should accurately reflect the relative profitability of the two groups of hog enterprises.

CASH AND OTHER COSTS

The cost data reported in Table 1 have been divided into two categories in Table 2: cash costs and other costs. This classification of production costs is important when making short-run management decisions concerning the level (volume) of production, particularly during periods of low prices.

As reported in Table 2, the cash costs of production in 1982 ranged from approximately \$33 to \$35 per 100 pounds of pork produced. Feed is included as a cash cost, although for most producers a major share of the grains are farm raised. The readily available alternative cash market for grain makes the raised feed the same as cash.

The other costs category includes depreciation, labor, and an interest charge on all capital. Part of the labor and interest charge is a cash cost on most farms. The proportion of labor that is hired is largely dependent on the size of the farm. A one-man farm does not hire much labor, while a major share of the labor will be hired on a four-man farm.

The share of the interest charge that is a cash expenditure depends upon the owner's equity in the business. It could range from zero to nearly 100 percent. On most farms, some share of the interest charge will be paid as an interest cash cost.

Table 2. Estimated Cash and Other Costs of Production for the Farrow-to-Finish Hog Enterprise by Size of Enterprise, 1982

	Average number of litters per year		
	All	Under 250	250 or more
	per 100 pounds of pork produced		
Cash costs			
Feed	\$ 26.85	\$ 27.70	\$ 25.89
Operating expenses ^a	4.41	4.40	4.41
Livestock expense	1.90	1.89	1.90
Insurance, taxes, and overhead	.91	.90	.93
Total cash costs	\$ 34.07	\$ 34.89	\$ 33.13
Other costs			
Depreciation ^b	\$ 3.49	\$ 3.38	\$ 3.63
Labor	3.62	3.78	3.45
Interest charge on all capital	5.77	5.90	5.62
Total other costs	\$ 12.88	\$ 13.06	\$ 12.70
Total, all costs	\$ 46.95	\$ 47.95	\$ 45.83

^aIncludes utilities, machinery, equipment and building repairs, machine hire and fuel.

^bIncludes machinery, equipment, and building depreciation.

LONG-RUN IMPLICATIONS

Producers should evaluate expected returns for more than one year before making new investments in hog production facilities. The return above all costs except management for 1978 to 1982 averaged a negative 62 cents per 100 pounds of pork produced for the small enterprises and \$1.13 for the large ones (Table 3). In three of the past five years, the returns have been negative for both groups. The difficult question confronting producers is whether the industry is moving into a period of narrower profit margins as compared with the more favorable long-run returns to the farrow-to-finish hog enterprise prior to 1979.

A substantial profit margin is required to compensate for the risks and detailed management activities involved in hog production. Large-scale hog production in modern confinement facilities requires large capital investments. The future recovery of this specialized capital investment is uncertain. The salvage value of confinement hog facilities is low.

Table 3. Returns Above All Costs by Size of Enterprise, 1978 to 1982^a

Year	Average number of litters per year		
	All	Under 250	250 or more
	per 100 pounds of pork produced		
1978	\$ 9.62	\$ 9.25	\$ 10.24
1979	-6.09	-6.34	-5.67
1980	-5.61	-6.87	-4.19
1981	-7.25	-8.55	-5.61
1982	10.10	9.39	10.89
Average, 1978 to 1982	\$.15	\$ -.62	\$ 1.13

^aNo charge was made for management.

Some hog producers in Illinois have lower production costs than those reported here. In some cases, opportunities exist to utilize fixed resources that have limited other uses. In planning new hog production investments, however, producers need to make a critical evaluation of available managerial ability and a careful projection of costs and returns.

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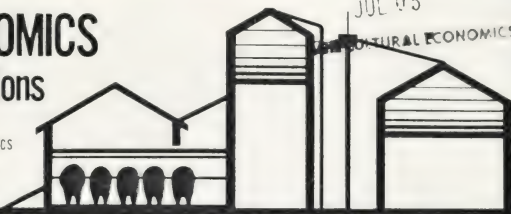
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June, 1983

83-13/Illinois Farmland Assessments Continue Downward

The Illinois Farmland Assessment Law was amended two years ago in August, 1981. The statutory change called for farmland property tax assessments to be based on net returns to the land from farming or the use-value of land in agriculture. In May, 1983, the Illinois Department of Revenue certified the use-value assessments, by soil productivity index, for the 1984 assessment year. Local assessing officials will use these values after they are reviewed by County Farmland Assessment Review Committees as the basis for initial 1984 assessments set on Illinois farms that will begin in January. Taxes will be paid on these assessments in 1985.

Use-value assessments on Illinois farmland declined for the third consecutive year. The index of assessed values in Figure 1 illustrates this downward trend. Farmland assessments dropped from an index of 100 in 1981 to an index of 69 in 1984. Assessments are estimated to continue to decline through 1985. However, the rate of decline is expected to be less severe, declining only 9 index points between 1984 and 1985 assessment years as compared with 22 points from 1983 to 1984.

These changes are directly linked to the economic conditions in Illinois agriculture. Commodity markets in 1982, for example, were the weakest in recent years, bringing forth (1) the greatest decline in land values since the Great Depression and (2) federal government support programs to bolster farm incomes.

The following formula determines use-value (UV) assessments in Illinois for each cropland soil productivity index:

$$UV = \frac{GI - C}{R}$$

Here GI is gross crop income, C is the nonland production costs, and R is the capitalization rate. Assessments are one-third of the use-value (UV). Each of these factors is measured by using five-year average data. 1983 assessments, for example, were based on data from 1977 through 1981; for 1984, the data were from 1978 through 1982. For 1985, data will be averaged from 1979 through 1983, and so forth.

The link between past and current agricultural economic conditions and farmland assessments can be identified by examining each of the factors that enters the assessment calculation.

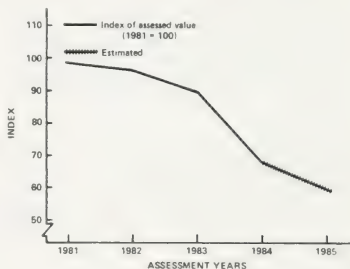


Figure 1. Index of Farmland Assessed Values, 1981-1984, with 1985 Estimate (1981 = 100)

The main economic forces influencing gross crop income (GI) in the assessment calculations are the corn and soybean prices received by Illinois farmers during the five-year periods. Figure 2 traces the five-year average prices for these commodities for assessment years 1981 through 1984, with estimates for 1985. While the average corn price continues to move upward, the average soybean price is lower in 1984 than 1983 and is estimated to decline further for 1985. Extremely weak 1982 soybean prices (\$5.88/bu.) that were added to the five-year average for 1984 assessments are the main reason for their decline. Thus, weak crop markets have placed downward pressure on the gross income assessment calculation.

Nonland production costs (C) that are subtracted from gross income (GI) in the assessment formula have moved up through 1982 (Figure 3). As indicated by the cost index, 1983 costs are expected to be below the 1982 level. However, five-year average costs from 1979 through 1985 will be above the five-year average of 1978-1982 because estimated 1983 costs, while lower than 1982, are still substantially above 1978 levels. The 1983 costs will replace 1978 costs in the five-year cost average used for 1985 assessments. These rising average costs will place additional downward pressure on net returns to land from farming.

The difference between the costs and gross income is divided by the capitalization rate to determine use-values (UV). The assessment law specifies this rate as the five-year average effective Federal Land Bank mortgage interest rate on new farmland loans. The rates for the 1981-1984 assessment years are shown in Figure 4. From 9.2 percent in 1981, the rate climbed to 11.71 percent for the 1984 assessment calculations. A higher capitalization factor yields lower assessments with no change in net returns. For 1985 assessments, an average capitalization rate around 12.3 percent is expected. About 8 percent of the decline in assessments in 1984 is the direct result of the capitalization rate increasing from 10.37 percent to 11.71 percent.

Farmland assessments in Illinois declined for three consecutive years because of weak commodity prices, higher average nonland production costs, and a higher capitalization rate. Expectations are for lower assessments in 1985. Stronger prices in 1983, particularly corn prices, will contribute to an assessment calculated gross income increase of about 1.5 percent from the 1984 level. However, the expected 4 percent rise in average nonland production costs and the expected 5 percent rise in the capitalization rate will more than offset this small growth in gross income. The result will be lower assessments on farmland in 1985, the basis for 1986 farmland property taxes.

Lower assessments will reduce the property tax bill of Illinois farmland owners, only if tax rates are not increased to maintain local government revenues. Some local governments, because of rate restrictions, may be forced to ask voters to relax these restrictions in order to maintain expenditure levels on local services. Fiscal pressure will likely be placed on many rural local government budgets as the weakened condition of the agricultural sector is reflected in property tax bases. Many communities will ultimately face challenging public policy choices on the allocation of local tax revenues.

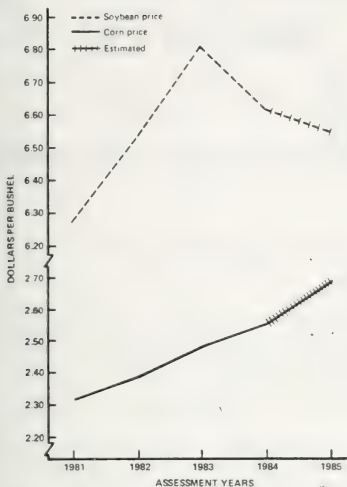


Figure 2. Average Prices: Assessment Years 1981-84, with 1985 Estimate (5-year moving average)

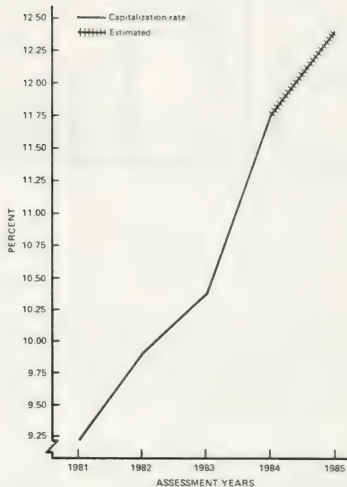


Figure 4. Capitalization Rate: Assessment Years 1981-84, with 1985 Estimate (5-year moving average)

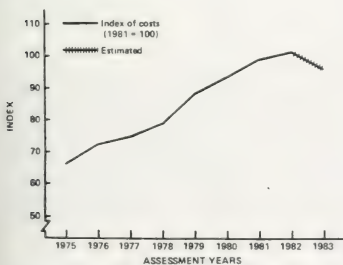


Figure 3. Index of Nonland Grain Production Expenses, 1975-82, with 1983 Estimate

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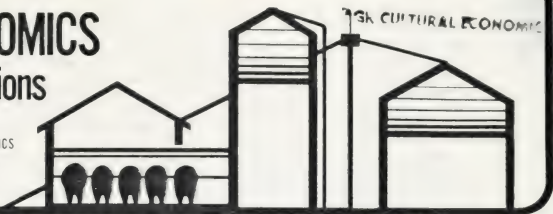
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



June, 1983

83-14/Illinois Farm Property Taxes: Levels and Trends

INTRODUCTION

Property tax plays a dominant role in financing local government services in Illinois. The greater portion of the property taxes collected (about 60 percent) supports local schools. Townships, counties, cities, and special district governments also rely on the tax. The property tax is an *ad valorem* tax -- a tax based on the value of land and buildings. As such, it differs from other taxes because real property, the tax base, must be periodically valued or assessed. In Illinois this is the administrative responsibility of elected and appointed township and county officials.

In a community, the level of property taxation is determined by the extent of government expenditure on local services. The property tax revenue that finances services is referred to as a *levy*. Local schools generally impose the largest levy, followed by cities and counties. The levy is distributed among property owners according to property value, hence the need for the assessment or the assigning of values to all taxable properties. More specifically, each property owner's share of the total tax levy is proportional to his or her share of the total property valuation within the boundaries of the local government levying the tax:

$$\text{Tax bill} = \text{Levy} \times \frac{\text{Assessed value of individual's property}}{\text{Total assessed value of local government}}$$

A long-standing criticism of the property tax is that it is unfair to agriculture because it places an absolute tax burden on farmers that is disproportionately high. It is also argued that this burden is not related realistically to the benefits farmers receive from the tax monies spent. Although this criticism is not unique to agriculture, a number of property tax reforms have been adopted as a result of these and similar arguments. Most states including Illinois have now adopted legislation providing property tax relief to the owners of farmland and other eligible properties. Most states also provide tax relief to homeowners through *homestead exemptions*. A 20 percent reduction in county residential assessments due to homestead exemptions is common in Illinois.

TAX LEVELS

Beginning in 1977, property tax laws for agricultural real estate were reformed through differential assessment legislation. The last of two amendments to the 1977 Illinois Farmland Assessment Law were adopted in 1981. However, little information is available on the level of farm real estate taxation in Illinois. Nor is there a historical perspective on the trend in tax levels. Figure 1 gives the per acre property taxes for a sample of Illinois grain farms from 1970 through 1982. Also included are data for the sample farms in the northern 68 counties and the southern 34 counties. Although the number of farms in the sample varied each year, generally over 1,800 reported annually, with an average of 1,300 from the northern counties and 518 from southern Illinois.

In 1982, the average tax paid by all sample farms was \$15.18 per acre. In 1970 the amount was \$8.74. The per acre taxes paid in the northern counties were generally twice the taxes paid in southern Illinois (e.g., \$19.19 versus \$9.25 for 1982, respectively). The relationship between property taxes on sample farms in northern and southern Illinois has remained amazingly stable since 1970. For example, the taxes in 1970 were \$9.25 and \$4.83, respectively. This difference may be related to differences in (1) land productivity; (2) property tax levies of local governments; and (3) local property tax administrative practices. Many central Illinois farms currently pay over \$20.00 per acre in taxes.

The level of farm property taxes in the future will depend on (1) the tax levies of local governments and (2) the assessments on farmland as determined by the use-value assessment formula adopted in 1981. In Illinois, economically weak agricultural conditions have caused assessments on farmland to decline in assessment years 1982 (taxes payable 1983), 1983 (taxes payable in 1984), and 1984 (taxes payable 1985). The 1983 farm tax data may show the first decline in per acre property taxes in decades--unless offsetting higher tax rates are imposed by taxing jurisdictions.

TAX TRENDS

Farm property taxes have increased on an average of \$0.83 per acre per year (about 8 percent annually) in northern Illinois and \$0.37 per acre per year (about 7 percent annually) in the south since 1970. Over this period, local governments in Illinois increased per capita expenditures at an average annual rate approaching 20 percent. An index of farm property taxes developed from the sample farms is presented in Figure 2. Here 1970 per acre taxes have an index of 100. In 1982 the index was 207.5 in the northern counties and 191.5 for the southern regions of Illinois. The growth in per acre taxes has not been constant during the 1970s. Between 1970 and 1975 taxes in both regions increased, on average, about 5 percent annually. From 1975 through 1982, farm taxes grew at an average annual rate of about 9.4 percent in northern Illinois and 7.8 percent in southern Illinois.

The effective tax rate compares property taxes to land values. These rates are presented in Table 1 for 1970 through 1982 with an estimate for 1983. As land values increased during the 1970s, effective tax rates declined throughout Illinois. However, the weakening of the farmland market in the early 1980s, in combination with continued higher property taxes, began to reverse this trend. Effective property tax rates are estimated to be higher in 1983 than those reported in 1982.

Table 1. Effective Property Tax Rates on Illinois Farms, 1970-1982

Tax year	Effective tax rate (%) ^a			Property taxes as percent of land rent ^b
	Northern Illinois	Southern Illinois	Illinois	
1970	1.66	2.11	1.79	23.11
1971	1.75	1.98	1.77	23.40
1972	1.65	1.53	1.55	18.57
1973	1.57	1.26	1.47	11.70
1974	1.61	1.31	1.42	9.93
1975	1.12	0.99	1.11	13.49
1976	1.02	0.88	0.96	11.74
1977	0.93	0.75	0.86	15.00
1978	0.74	0.62	0.72	15.29
1979	0.72	0.59	0.68	14.18
1980	0.69	0.54	0.65	15.11
1981	0.60	0.49	0.56	17.41
1982	0.58	0.51	0.56	18.67
1983 ^c	0.63	0.50	0.56	...

^aEffective tax rate is property taxes as percent of farm land value, computed by using only grain farms.

^bThis percentage refers to a group of northern and central Illinois grain farms. Land rent is the landlord's crop-share rent and includes property taxes.

^cEstimated.

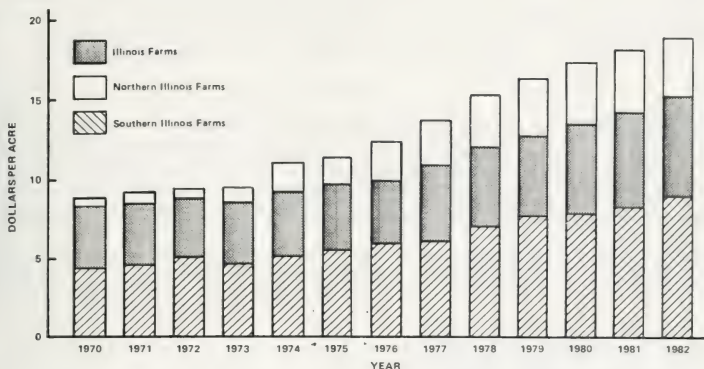


Figure 1. Per acre property taxes on Illinois farm real estate, 1970-1982.

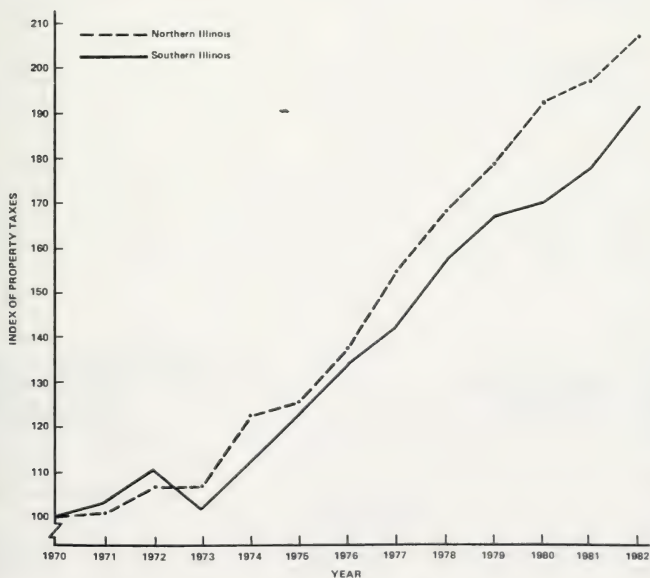


Figure 2. Index of farm property taxes for northern and southern Illinois, 1970-1982.

A similar trend is evident from the last column of Table 1, which shows property taxes as a percentage of land rents for a sample of central Illinois grain farms. The strong commodity markets in the early 1970s reduced the percentage of landlord crop-share rent used to pay property taxes to less than 10 percent. Since that period, the percentage has been increasing. In 1982 about 19 percent of rents were paid in property taxes. This proportion is similar to the level in 1972.

SUMMARY

Farm real estate taxes in Illinois have increased steadily over the last decade. During this period, property tax reform was adopted in the form of use-value assessments for farmland and homestead exemptions for residential property. The weak economic conditions of Illinois agriculture have reduced the market value of farmland as well as the use-value assessments of farmland. Lower assessments may reverse past farm property tax trends and reduce the average per acre property taxes on farm real estate in Illinois. This reversal is contingent on the stability of the tax rates imposed by local governments. Any increase may offset the trend.

Lower assessments on farms (and other real estate) that result from the weak economy may place fiscal pressure on many local governments, including school districts, who rely on an agriculturally dominated tax base to finance services. The tax rate may have to be readjusted to meet the demands for local services.

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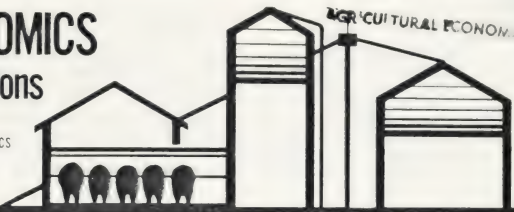
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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



July, 1983

83-15/Cost to Produce Milk, 1982

The results of a cost/production study of 182 Illinois dairy farms with an average of 72 cows per farm show that the total cost to produce milk in 1982 was \$13.82 per 100 pounds (Table 1). Feed costs made up 44 percent of the total, or \$6.05. Nonfeed costs were \$7.77. The net price received for milk averaged 81 cents per 100 pounds below the total cost of production in 1982 on these farms. When the farms were separated into two size groups, 40 to 80 cows and over 80 cows, the larger herds received 68 cents per 100 pounds of milk produced more returns above all costs from milk than the smaller herds. This difference amounts to \$97 per cow or \$10,185 more returns from the 105 cow herds.

These data are summarized from Illinois Farm Business Records. About 60 percent of the farms with 40 to 80 cows and 40 percent of the farms with over 80 cows were located in northern Illinois; the remainder were in southern Illinois. This mix resulted in about 60 percent of all the herds in both groups being located in northern Illinois. These farms represent an estimated level of management that is slightly above the average of all farms of similar size and type.

The total production costs were accounted for by being allocated to crops or the dairy enterprise; dairy was the only livestock produced on these farms. Average 1982 grain farm costs were used to establish the crop costs. The balance of the total farm costs was allocated to the dairy enterprise. To obtain the net cost for producing milk, each cost item for the total dairy enterprise was first reduced proportionately by the income received from the beef produced using the 1978-1982 average price received for all cull cows and weaners sold. The total cost per cow was \$2,219; the average beef income was \$301, leaving a net cost of \$1,918 per cow for milk production. Thus, each cost item was reduced by 13 percent (Table 1).

FEED COSTS

The dairy herd (including young stock) feed costs per cow for both beef and milk included 116 bushels of corn or its equivalent, 1,867 pounds of commercial feeds, and 7.3 tons of hay or its equivalent from dry hay, hay silage, corn silage, and pasture. The price charged for corn fed was \$2.43 per bushel. All grains fed were charged at the opportunity cost equal to the average prices paid during the year for grain sold in Illinois. Commercial feeds were charged at actual cost, hay and silage at farm values, and pasture at 35 cents per animal unit pasture day. The feed cost figure of \$6.05 per hundred pounds of milk produced was 87 percent of the total feed costs required to produce both beef and milk.

NONFEED COSTS

The nonfeed cost figure of \$7.77 was only 3 percent higher than 1981 on these same farms. It includes maintenance and depreciation for buildings and equipment of \$2.38 per 100 pounds of milk. The \$1.94 labor cost included charges for available unpaid labor plus the actual wages paid for hired labor. Interest included a charge on all capital invested at a rate of 14 percent. Labor plus machinery and equipment accounted for one-half these costs (Table 1).

COSTS AND RETURNS 1979-1982

Returns above all costs per cow have been declining each year since the record high year in 1979 (Table 2). Costs of production have been increasing faster than the price of milk, especially interest costs. But the 8 percent lower feed cost in 1982 offset part of the effect of higher nonfeed costs and lower milk and beef prices. With less favorable dairy support prices and continued high production costs, dairymen can expect lower net incomes until milk supplies are sufficiently reduced so that they are consistent with the demand for milk products. The larger dairy herds have slightly lower production costs, especially labor costs, and higher production per cow. These factors will become more important in the cost-price-squeeze period that is anticipated.

Table 1. Cost and Returns for the Dairy Enterprise by Size of Herd, 1982

Number of farms.	Number of cows in the herd		
	All 182	40-80 134	Over 80 48
Average per farm:			
Number of cows	72	60	105
Milk produced per cow (lb.)	13,860	13,639	14,477
Beef produced per cow (lb.)	581	564	628
Per cow in the herd			
Costs, milk plus beef.	\$ 2,219	\$ 2,199	\$ 2,273
less average returns from beef	301	291	330
Net cost for milk.	\$ 1,918	\$ 1,908	\$ 1,943
Return from milk	1,802	1,774	1,882
Return above all cost.	- 116	- 134	- 61
Per 100 pounds of milk produced			
Net price received	\$ 13.01	\$ 13.01	\$ 13.00
Feed costs	6.05	6.15	5.77
Return above feed costs.	\$ 6.96	\$ 6.86	\$ 7.23
Nonfeed costs:			
Buildings.	\$.66	\$.65	\$.70
Machinery and equipment.	1.72	1.76	1.61
Labor.	1.94	2.00	1.76
Livestock expense.	.80	.78	.84
Taxes.	.11	.12	.07
Insurance and overhead	.14	.14	.16
Interest charge on all capital	2.40	2.40	2.40
Total, nonfeed costs	\$ 7.77	\$ 7.85	\$ 7.54
Total, all costs	13.82	14.00	13.31
Return above all costs ^a	- .81	- .99	- .31

^aNo charge was made for management.

Table 2. Cost and Returns per Cow, 1979-1982

	1979	1980	1981	1982
Number of farms.	160	174	201	182
Number of cows	71	70	73	72
Total per cow:				
Costs, milk plus beef.	\$ 1,750	\$ 2,038	\$ 2,235	\$ 2,219
Less actual returns from beef. .	339	330	272	301
Net cost for milk.	\$ 1,411	\$ 1,708	\$ 1,963	\$ 1,918
Return from milk	1,602	1,734	1,834	1,802
Return above all cost.	\$ 191	\$ 26	\$ - 129	\$ - 116
Price received per 100 lb. of milk. .	11.67	\$ 12.32	\$ 13.23	\$ 13.01
Price received per 100 lb. of beef. .	59.27	56.84	52.73	48.47
Pounds beef produced per cow	572	580	568	581
Pounds milk produced per cow	13,727	14,077	13,862	13,860

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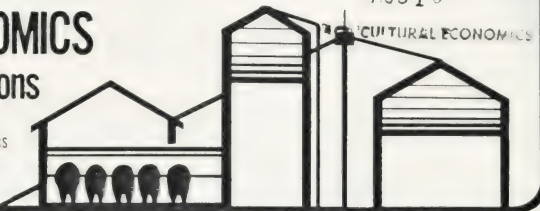
Extension Specialist, Farm Management



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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August, 1983

83-16/Beef Feeding Costs and Returns, 1980-82

A study of 59 Illinois farms with a beef feeding enterprise reveals the following results for the three-year period from 1980 through 1982. On a per hundredweight produced basis, returns above direct costs were \$7.48 short of covering the cost of feed and other direct cash expenses (see Table). This shortage amounted to \$35.68 ($\$7.48 \times 4.77$ hundredweight gain per head) per head marketed from the feedlot each year for the past three years. The average feedlot in the study marketed 476 head of 475 pound gain equivalents. This cash loss averaged \$16,984 ($\$35.68$ per head $\times$ 476 head) per farm each year. While the annual return was a positive \$10,637 in 1982, it was negative \$33,492 in 1981 and a negative \$26,592 in 1980.

These data are summarized from Illinois Farm Business Records. The sample studied included only the farms where more than 40 percent of the value of crop production was used to finish a beef feeder enterprise including all weights of feeders, both calves and yearlings. This degree of intensity in beef feeding indicates a commitment of substantial resources to the enterprise. The farms averaged 452 tillable acres per farm.

Total farm production costs were allocated between crops and the beef feeding enterprise. Beef feeders were the only livestock enterprise on the farm. Average grain-farm costs for 1980, 1981, and 1982 were used to establish the crop costs, with the balance of the total farm costs allocated to the beef feeder enterprise.

FEED COSTS

The average 1980-82 feed cost of \$43.42 per 100 pounds of beef produced included the value of 558 pounds of farm grains (equivalent of 10 bushels of corn), 46 pounds of commercial feeds, 52 pounds of dry hay, 215 pounds of haylage, 719 pounds of corn silage, and an insignificant amount of pasture. The roughage fed was equivalent to 391 pounds of dry hay per 100 pounds produced, or .93 tons per head sold. In the analysis, a uniform price of \$2.74 as the average market price for the three-year period was used for corn. This price ranged from \$2.98 in 1981 to \$2.43 in 1982. Commercial feeds were charged at actual cost, and hay and silage at farm values. The analysis assumes that there was a market for all roughages used.

NONFEED COSTS

The total of all nonfeed costs, both direct and other, for 1980-82 averaged \$28.87 (total of all costs \$72.29 less feed costs of \$43.42). These costs include maintenance costs and depreciation charges for buildings, machinery, and equipment, interest, labor and other cash items allocated to the enterprise. The average interest rate for the three-year period was 13.7 percent. This rate was charged for money invested in cattle and on one-half of the total cash operating expenses. It was also charged on the undepreciated values left in buildings and equipment. The average labor cost of \$2.22 included charges for available labor at the rate of \$1,050 per month and actual wages paid to hired labor.

DIRECT CASH AND OTHER COSTS

The cost data reported in the table have been divided into two categories: direct cash and other. This classification of production costs is important when making short-run management decisions concerning the level or volume of production, particularly during periods of low prices.

Those items included in direct costs catering are primarily cash costs that vary with the amount of production. Feed is included as a cash cost, even though most of this feed is farm raised. It was the operator's choice to sell his feeds produced to the cattle enterprise rather than buy them from off the farm. It was assumed that there were alternative markets for all feeds fed. If this were not the case, and yet hay had to be grown for soil conservation purposes, we could lower the price charged for this hay from market price to actual harvesting cost. This would reduce the return from the crop enterprises and increase the returns from cattle by equal amounts, thus leaving the net total farm income the same.

The other costs category includes depreciation, labor, and interest on all capital other than investment in cattle. Part of the labor and interest charge may be cash on some farms. The proportion of labor that is hired is largely dependent on the size of the farm. A one-man farm does not hire much labor. The average farm in this sample had about six months of hired labor.

The share of the interest charge that is a cash expenditure depends upon the owner's equity in the business. It could range from zero to nearly 100 percent, depending on recent investments in the feeding facilities.

TOTAL RETURNS

Total returns include all sales of all qualities and ages of cattle fed each year, less the cost of purchased animals, plus or minus any change in inventory values, plus the value of animals consumed. The data are heavily weighted with good-to-choice calves and yearlings as the predominate cattle feeding system. No credit has been calculated for reduced fertility cost on these farms from the manure applied to the crops.

LONG-RUN IMPLICATIONS

This summary indicates that the net returns from the beef feeding enterprise continue to fluctuate widely from year-to-year. However, at no time have returns reached the levels needed to recover all costs. Since 1980 (36 months), the negative \$7.48 average return above direct cost per hundredweight of beef produced indicates that labor was performed for no pay. There was no return on investment in facilities for interest or depreciation. When these conditions exist, feeders continuing to feed cattle can do so only as long as they can subsidize the operation with profits from the crop enterprises, use interest free capital, and/or improve their feeding and marketing efficiencies. This may require new product development in the red-meat industry.

Feeders should evaluate their payoff break-even price for more than one year before making new investments in cattle feeding. The beef feeding enterprise is currently operating on extremely small profit margins per unit of gain. The industry is being plagued by high interest rates that increase costs and reduce demand for beef.

Feeders need to understand three important points: (1) They should know their payoff break-even price when they buy and sell feeders. (2) They should know that there is a tendency to overbid the price of feeders. (3) They should recognize that high interest rates increase costs. Interest rates have doubled in the past 10 years, and pounds of beef consumed per person have declined steadily since 1976, while lower-priced poultry has increased steadily. Since 1979, consumer spending on beef dropped 17 percent, while spending on poultry fell 14.7 percent and on pork 12.8 percent.

The future for beef feeders on Illinois farms looks best for those who have large amounts of nonsalable resources, such as labor, nonmarketable feeds, and feeding facilities. Combination crop and beef enterprises can supplement each other to help reduce risk due to the wide fluctuations in annual returns from the beef enterprise. Regardless of the resources available, feeders will have to produce and market the kind and quality of beef that the consumer demands.

Average Costs and Returns to Produce 100 Pounds of Beef
(Beef-Feeding Enterprise) 1980, 1981, and 1982

	3-Year Average	1982	1981	1980
Number of farms	59	56	63	59
Tillable acres per farm	452	474	470	413
Hundredweight beef produced	2,262	2,402	2,211	2,173
Purchase weight	588	596	570	598
Selling weight	1,065	1,056	1,066	1,073
Price received per 100 lbs. sold	\$63.61	\$63.07	\$62.18	\$65.57
Price paid per 100 lbs. purchased	\$67.57	\$62.46	\$65.00	\$75.25
Gain per head sold	477	460	496	475
No. head @ 475 lbs. gain equivalents.	476	506	466	457
Pounds of feed per 100 pounds gain:				
Farm grains	558	537	552	584
Commercial feeds	46	44	44	51
Hay	52	26	96	33
Haylage	215	259	251	136
Corn silage	719	756	714	686
Hay equivalents, lbs.	391	394	451	329
<i>per hundredweight of gain</i>				
COSTS				
Direct cash costs:				
Feed	\$43.42	\$41.32	\$45.41	\$43.54
Livestock expense	1.64	1.82	1.35	1.75
Power, fuel, and equipment repair	3.71	3.88	3.86	3.39
Building repairs	.75	.77	.81	.67
Interest on cattle	9.92	9.39	10.87	9.51
Insurance and overhead	.83	.93	.84	.72
	(\$60.27)	(\$58.11)	(\$63.14)	(\$59.58)
Other costs:				
Depreciation and taxes on buildings	\$ 2.53	\$ 2.48	\$ 2.72	\$ 2.38
Depreciation on equipment	2.91	2.98	2.98	2.76
Interest on buildings and equipment	4.36	4.34	5.60	3.14
Labor	2.22	2.30	2.33	2.04
	(\$12.02)	(\$12.10)	(\$13.63)	(\$10.32)
TOTAL ALL COSTS	\$72.29	\$70.21	\$76.77	\$69.90
TOTAL RETURNS	\$52.79	\$62.68	\$48.65	\$47.03
RETURNS ABOVE ALL COSTS	-\$19.50	-\$7.53	-\$28.12	-\$22.87
RETURNS ABOVE DIRECT COSTS ONLY	-\$7.48	\$ 4.57	-\$14.49	-\$12.55

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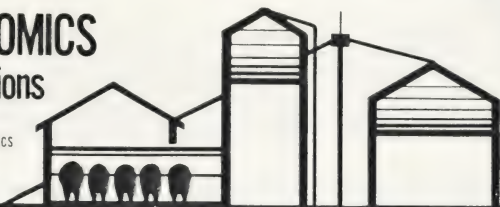
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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



December, 1983

Valuing Farm Input Handbook
Section 5, No. 1

83-17/1984 Wheat and Feed Grain Programs: Considerations in Crop Selection and Participation

The major factor to consider when finalizing plans for 1984 crop plantings is whether or not to participate in the 1984 Wheat and Feed Grain Acreage Reduction Program (ARP) and the Wheat Payment-In-Kind (PIK) Program. Sign up begins January 16, 1984, and ends February 24, 1984. Since producers who sign up will not be allowed to withdraw without a penalty, they should analyze carefully the alternatives in advance of sign up.

Other factors influencing the choice of crops grown and practices followed include carryover effects of the 1983 drought on the use of inputs, effects of the acres idled for payment-in-kind (PIK) and acreage-reduction programs (ARP) in 1983, cash availability, and increases in input prices. Lastly, the expected relationship of the prices for commodities will be important in deciding upon land use in the 1984 growing season.

THE 1984 WHEAT AND FEED GRAIN PROGRAMS

Provisions of the wheat and the feed grain programs for 1984 have been announced. To become eligible for target price protection, price support loans, and farmer-owned reserve programs, feed grain and wheat producers must comply with the acreage-reduction requirements. However, there is no required cross compliance between crops nor offsetting compliance between farms. The sign-up phase for both wheat and feed grain programs begins January 16, 1984, and ends February 24, 1984. A summary of the program provisions and payment rates is given in Table 1.

Table 1. Program Provisions and Payment Rates, 1984

	Corn	Sorghum	Barley	Oats	Wheat
Required acreage reduction (% of base)	10	10	10	10	30
Maximum planted acreage (% of base)	90	90	90	90	70
PIK land diversion (% of base)	NA	NA	NA	NA	10-20
PIK payment rate (% of yield base)	..	..	..	..	75
Target price	\$3.03	\$2.88	\$2.00	\$1.00	\$4.45
Nine-month loan price	2.55	2.42	2.08	1.31	3.30
Reserve loan price	2.55	2.42	2.08	1.31	3.30
Maximum deficiency payment rate	0.48	0.46	0.52	0.29	1.15

The major features of the wheat program call for a 30 percent unpaid acreage reduction and an optional 10 to 20 percent land diversion for payment-in-kind payments at the rate of 75 percent of established yield. Program participants will be eligible for a loan on their 1984 wheat of \$3.30 per bushel, national average, and deficiency payments based on a target price of \$4.45. Producers participating in PIK agree to accept PIK payments from their regular or reserve loans, or to harvest for PIK.

The feed grain program participants must reduce their acreage by 10 percent. Participants are eligible for a loan on their 1984 corn of \$2.55 per bushel and deficiency payments based upon a target price of \$3.03. The 1984 program for feed grains will have no diversion payments, no payment in kind, or no immediate entry into the farmer-owned reserve.

To be eligible for the farmer-owned reserve for both wheat and feed grains, farmers will have to take out a 9-month loan. Before the 9-month feed grain loans reach maturity, the Secretary of Agriculture could place a ceiling on the amount that could enter the reserve. Storage payments for both reserve corn and wheat are expected to continue at the present annual rate of \$.265 per bushel.

The acreage base for both feed grains and wheat on which acreage reduction will be figured is the acreage planted or considered to be planted to feed grains or wheat in 1982 and 1983. Acreage placed in the acreage reduction or PIK programs during 1982 or 1983 is considered to be planted for the purpose of establishing a feed grain and wheat acreage base. Actually, each farm has two feed grain bases, one for corn and grain sorghum and one for oats and barley.

The eligibility requirements for land placed in acreage-conservation reserve (ACR) and the cover crops to meet program requirements are the same as those for 1983 programs. Producers have until December 31, 1983, to appeal assigned yields and base acreages for all crops on these farms.

CROP PRODUCTION PLANS

You can determine the effects of different crop combinations (land use) and of participation in the feed grain and wheat program on your farm by making estimates for each crop plan. To prepare a systematic analysis of alternatives, you will need to make three major judgments about what you expect in terms of yields, variable costs of production, and market prices. You also will need information from the Agricultural Stabilization and Conservation Service regarding your base acreages of feed grains and wheat, program yields, and the specific requirements for participation in the 1984 feed grain and wheat programs on your farm.

Yields. Check your recent farm records. Base your projected yield on typical or average yields. Do not expect next year's situation to be like last year's. Consider field-to-field variations that might change your choice of crops.

Costs. The typical costs of producing various crops are listed in Table 2. Use data in the table as a guide to estimating variable costs for the crops that you expect to grow. The costs are divided into variable costs, other costs, and land costs. The costs are for an owner operator; if you are a tenant, include only the portion of the cost items that you furnish.

The variable costs in Table 2 include those items incurred through harvest. If grain is stored, the added costs of storing should be included.

Market prices. The next step is to estimate the prices that you expect to receive for grain sold at harvest, placed under loan, or sold from storage. After that, determine the estimated gross returns from the crops you plan to raise. The level of market prices will depend upon the extent of participation in feed grain and wheat programs and the growing conditions for the 1984 crop. Current futures market quotations may be used to project prices. At a minimum, wheat and corn prices at harvest will equal the loan price less storage costs; stored prices should equal the loan price plus redemption interest cost.

Deficiency payment. Much of the difference in net crop income over variable costs between participants and nonparticipants in 1984 feed grain and wheat programs will depend upon the amount of the deficiency payments. The target price deficiency payment for corn depends upon the difference between the target price and the 5-month market price received by farmers. The maximum deficiency payment is \$0.48 for corn, the difference between the \$3.03 target price and the \$2.55 loan price. In the case of wheat, the maximum deficiency payment is \$1.15, the difference between the \$4.45 target price and the \$3.30 loan price. The deficiency payment rate will decline as the average 5-month average price rises above the loan and approaches the \$3.03 corn and \$4.45 wheat target prices.

COMPARING ALTERNATIVES

As a guide to crop combinations that might optimize net crop returns in your farming operation, the contributions of individual crops and idled acres at varying yields are presented in Table 3. The net return over variable cost figures indicates, in general, the effects of acreage shifts without a complete budget of the whole cropping system. For instance, a comparison of the \$181 net return over variable costs from a 135-bushel corn crop sold at harvest for \$2.50 per bushel with the net return of \$202 for a 45-bushel soybean crop sold at harvest for \$6.50 per bushel suggests that you shift some acres from corn to soybeans if you are not participating in the reduced-acreage program for corn. However, unless you expect the advantage to continue for the long run, you may not wish to reduce feed grain acres planted below the maximum base level because it will reduce base acreages for participation in future governmental programs.

Similarly, in evaluating possible participation in 1984 programs for feed grains and wheat, you should compare the expected return per idle acre in set aside with the returns from other crops. Although the 10 percent acreage reduction for corn and the 30 percent reduction for wheat is said to be without payment, one can consider the deficiency payment a return for the set-aside acres and compare this expected return with the returns from other crops.

The deficiency payment per acre set aside for corn or wheat on your farm can be estimated by multiplying your farm program yield by planted acres and dividing by the number of acres set aside and multiplying that amount by the deficiency payment rate. The calculated deficiency payment net return over variable costs for 125 bushel corn program yield is \$520 per acre set aside at the maximum deficiency payment rate of 48 cents. With only a 23 cent payment rate, the deficiency payment per set aside acre for 125 bushels program yield totals \$259 and would net \$239 over variable costs. Both of these net returns per acre idled exceed the \$181 and \$221 net returns for 135 bushel corn sold at harvest-time prices of \$2.50 and \$2.80. This comparison suggests that participation in the feed grain program would improve net crop returns, if five month average price of corn averages \$2.80 per bushel or less. However, if the quality of

land set aside as conservation acreage reserve has an expected yield lower than established program yield, then a higher price would be needed to generate equal returns.

For producers who have storage and are able to place their crop under loan or sell from storage later in the year, the net value of the stored crop over variable costs including additional storage costs should be compared.

EVALUATION OF PROGRAM PARTICIPATION ON CROP RETURNS

The effect of participation in the 1984 feed grain and wheat programs on farm crop returns depends upon several factors. Three major factors are (1) expected prices, (2) expected yields relative to program yields, and (3) the extent to which expenditures can be reduced by idling acres. Other factors are the level of payments for idled acres and the opportunity returns from land set aside in the Acreage Conservation Reserve. Producers should carefully budget the alternatives to their situation on attached worksheet, AE 4543: Income Possibilities: Participation vs. Nonparticipation in 1984 Government Programs for Corn or Wheat. Additional copies of this worksheet are available from county Extension offices.

CROP RETURNS FOR FEED GRAIN PROGRAM PARTICIPATION ALTERNATIVES

A summary of net returns over variable costs for program participation versus nonparticipation under varying price, yield, and storage situations is presented in Table 4. The results include four levels of price expectations. The prices used were \$2.25, \$2.45, \$2.65, and \$2.85 for harvest time and \$2.60, \$2.80, \$3.00, and \$3.20 for grain delivered from farm storage. The corresponding deficiency payments were \$0.48, \$0.33, \$0.13 and 0. The three yield situations were (1) realized yield 25 bushels less than 125 bushel program yield, (2) realized yield equal to 125 program yield, and (3) realized yield exceeding 125 bushel program yield by 25 bushels.

The data in Table 4 indicate that participation insures returns. The net returns from participation are similar at all price levels below the \$3.03 target price. On the average, the lower returns from the fewer acres and selling prices below the target price are offset by the higher deficiency payment. Without the price protection, the nonparticipant's net return varies directly with price. Participation in the program does not reduce production risks in that the level of returns varies directly with the level of realized yields.

The advantage for participation over nonparticipation is greater when farm storage is available. The producer can place his grain under loan and secure seasonal price improvements as well as have the use of cash to meet cash flow requirements for business expenses and withdrawals for living and debt obligations.

CROP RETURNS FOR WHEAT PROGRAM PARTICIPATION ALTERNATIVES

A summary of net returns over variable costs for program participation versus nonparticipation under varying yield and prices with and without a double crop of soybeans is presented in Table 5. The results include three levels of price expectations, \$3.00, \$3.60 and \$4.20, and corresponding deficiency payment levels of \$1.15, \$0.85, and \$0.25. The three yield situations were (1) realized yields 15 bushels less than 54 bushel program yield, (2) realized yield equal to 54 bushel program yield, and (3) realized yield 15 bushels greater than 54 bushel program yield. The double crop returns for a double crop yield of 20 bushels of soybeans was \$47 per acre for all program alternatives.

The greatest advantage for participation in wheat programs occurs with realized yields falling below program yields, low wheat prices, and no double crop of soybeans. When realized yields equal or exceed program yields, the net returns for nonparticipation are greater than any of the program participation alternatives.

SUMMARY

Although the 1984 program is on a much more limited scale than 1983, the decision to participate should be studied carefully. Program criticism by politicians or farm organization officials is not a sound basis for rejection. Rather, a careful analysis based on costs and possible returns from participation is a sounder basis for making a decision. As in past programs, participation helps to reduce risks. As with any insurance policy, there is some cost involved. In addition, participation in the programs aids soil conservation in that producers will be able to withdraw land from production that is subject to excessive erosion with little or no loss in income.

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Table 2. Estimated Costs Per Acre for Producing Crops, 1984

	Rotated corn (135 bu.)	Second- year corn (125 bu.)	Soybeans (45 bu.)	Wheat (54 bu.)	Oats (80 bu.)	Double crop soybeans (20 bu.)	Set aside cover crop	Alfalfa hay (4.5 tons)
Variable costs:								
Seed	\$ 21	\$ 21	\$ 13	\$ 10	\$ 8	\$ 16	\$ 4	\$ 9
Pesticides	16	24	19	1	1	28	..	6
Fertilizer								
N	35	35	..	19	14	..	..	..
P, K, Lime . . .	26	23	23	19	15	9	4	52
Mchy. rep. & fuel	34	34	30	19	17	15	7	30
Dry. fuels & rep.	16	15	..	..	..	..	..	..
Interest on opera- ting capital. . .	9	10	5	4	3	4	..	6
Total variable costs	\$157	\$162	\$ 90	\$ 72	\$ 58	\$ 72	\$ 15	\$103
Other costs:								
Mchy. depr. & int.	\$ 50	\$ 50	\$ 42	\$ 32	\$ 32	\$ 25	\$ 22	\$ 40
Labor	21	21	20	10	10	10	5	40
Management . . .	17	16	14	8	6	6	..	14
Storing (int.&bin)	31	29	22	14	13	9	..	34
Misc.	15	15	15	15	15	8	8	15
Total other costs. .	\$134	\$131	\$113	\$ 79	\$ 76	\$ 58	\$ 35	\$143
Land costs (cash rent)	\$100	\$100	\$100	\$100	\$100	\$	\$100	\$100
Total all costs. . .	\$391	\$393	\$303	\$251	\$234	\$130	\$150	\$346

Table 3. Comparison of Crop Returns Per Acre, 1964

	Yield or payment base per acre	Harvest price or payment rate per unit	Crop returns per acre	Variable cost per acre ¹	Net returns over vari- able costs per acre
Corn (bu.)	100	\$2.20	\$220	\$137	\$ 83
	100	2.50	250	137	113
	100	2.80	280	137	143
	135	2.20	297	157	140
	135	2.50	338	157	181
	135	2.80	398	157	221
	170	2.20	374	185	189
	170	2.50	425	185	240
	170	2.80	476	185	291
Deficiency for corn set aside					
100 bu. Program yield					
5 mo. price 2.55 or less	900 ² bu.	\$.48	432	20	412
	2.80	.23	207	20	187
	3.10	00	00	20	-20
125 bu. Program yield					
5 mo. price 2.55 or less	1,125 ² bu.	.48	540	20	520
	2.80	.23	259	20	239
	3.10	00	00	20	-20
150 bu. Program yield					
5 mo. price 2.55 or less	1,350 ² bu.	.48	648	20	628
	2.80	.23	310	20	290
	3.10	00	00	20	-20
Soybeans,					
Single crop, (bu.) . .	30	\$6.50	\$195	\$ 76	\$119
	45	6.50	292	70	202
	60	6.50	390	104	286
Double crop, (bu.) . .	15	\$6.50	\$ 98	\$ 67	\$ 31
	20	6.50	130	72	58
	25	6.50	162	77	85
Wheat (bu.)	36	\$3.00	\$108	\$ 60	\$ 48
	54	3.00	162	72	90
	72	3.00	216	87	129
Deficiency for wheat set aside					
Program yield, bu. . .	84 ² (36)	\$1.00	\$ 84	\$ 20	\$ 64
	105 ² (45)	1.00	105	20	85
	126 ² (54)	1.00	126	20	101
Wheat PIK payment					
75% program yield, bu..	27 (36)	\$3.45	\$ 93	\$ 20	\$ 73
	33.8 (45)	3.45	117	20	97
	40.5 (54)	3.45	140	20	120
Oats (bu.)	60	\$1.50	\$ 90	\$ 54	\$ 36
	80	1.50	120	58	62
	100	1.50	150	64	86
Hay (ton)	3.0	\$80	\$240	\$ 73	\$167
	4.5	80	360	103	257
	6.0	80	480	133	347

¹ Includes seed, pesticides, fertilizer, machinery repairs and fuel, drying costs and interest on operating capital only. Also includes bin costs for commodity loan situations.

² Production eligible for deficiency payment per acre set aside --
 corn: program yield x .9 ÷ .1 acre set aside.
 wheat: program yield x .7 ÷ .3 acres set aside.

Table 4. Net Crop Returns over Variable Costs per Base Acre¹ for Participation versus Nonparticipation in 1984 Feed Grain Program for Corn

Tenure Situation, Time of Sale, and Price	Realized yield 25 bu. less than 125 bu. program yield			Realized and program yields equal at 125 bu.			Realized yield 25 bu. greater than 125 bu. program yield		
	Not Parti- cipate	Parti- cipate	Advantage for Par- ticipation	Not Parti- cipate	Parti- cipate	Advantage of Par- ticipation	Not Parti- cipate	Parti- cipate	Advantage of Par- ticipation
Sell at harvest									
Owner operator									
\$2.25	\$ 130	\$ 87	\$43	\$ 183	\$ 145	\$38	\$ 235	\$ 203	\$32
2.45	133	109	24	190	173	17	249	236	13
2.65	130	131	-1	192	200	-8	255	269	-14
2.85	135	153	-18	202	227	-25	269	301	-32
50-50 Tenant									
\$2.25	\$ 45	\$ 21	\$24	\$ 70	\$ 49	\$21	\$ 95	\$ 77	\$18
2.45	46	32	14	73	63	10	101	93	8
2.65	44	42	2	74	76	-2	104	109	-5
2.85	53	46	-7	78	89	-11	111	125	-14
50-50 Land Owner									
\$2.25	\$ 78	\$ 57	\$21	\$ 103	\$ 85	\$18	\$ 129	\$ 113	\$16
2.45	79	68	11	107	99	8	134	129	5
2.65	77	79	-2	107	112	-5	137	145	-8
2.85	80	89	-9	112	125	-13	144	161	-17
Sell from on farm storage									
Owner operator									
\$2.50	\$ 155	\$ 97	\$58	\$ 214	\$ 157	\$57	\$ 272	\$ 218	\$54
2.70	144	117	27	203	182	21	263	248	15
2.90	138	137	1	203	207	-4	268	277	-9
3.10	142	157	-15	211	232	-21	280	308	-28

¹ Base acre is sum of .9 acre of corn plus .1 acre of set aside for participation and 1 acre of corn for non-participation.

Table 5.

Net Crop Returns over Variable Costs per Base Acre¹ for Participation versus Nonparticipation in 1984 ARP and PIK Programs for Wheat

Wheat Price and Crop System	Non Participation	Participation		
		Basic ARP	Basic ARP + 10% PIK	Basic ARP + 20% PIK
<u>Realized and Average Yield (54 bu.)</u>				
\$3.00				
Wheat only	\$ 90	\$100	\$ 95	\$ 90
With double crop soybeans	136	133	123	113
\$3.60				
Wheat only	122	111	107	102
With double crop soybeans	169	144	135	126
\$4.20				
Wheat only	154	111	109	107
With double crop soybeans	201	144	137	131
<u>Low Realized Yield (39 bu.) with 54 bu. Base Yield</u>				
\$3.00				
Wheat only	\$ 46	\$ 69	\$ 69	\$ 68
With double crop soybeans	93	102	97	91
\$3.60				
Wheat only	69	74	75	76
With double crop soybeans	116	107	103	100
\$4.20				
Wheat only	93	68	72	75
With double crop soybeans	140	101	100	100
<u>High Realized Yield (69 bu.) with 54 bu. Base Yield</u>				
\$3.00				
Wheat only	\$133	\$130	\$121	\$111
With double crop soybeans	180	163	149	135
\$3.60				
Wheat only	174	148	138	129
With double crop soybeans	221	181	166	152,
\$4.20				
Wheat only	216	154	146	138
With double crop soybeans	263	187	174	161

¹ Base acre is 1 acre of wheat for non-participation, .7 acre of wheat plus .3 acre set aside for Basic ARP, .6 acre wheat plus .3 acre set aside plus .1 acre PIK diversion for ARP plus 10% PIK, and .5 acre wheat plus .3 acre set aside plus .2 acre for PIK diversion for ARP plus 20% PIK.



INCOME POSSIBILITIES WORKSHEET PARTICIPATION VERSUS NONPARTICIPATION IN 1984 GOVERNMENT PROGRAM FOR CORN

	PARTICIPATE		NOT PARTICIPATE	
	Example	No. Farm	Example	No. Farm
PROGRAM INFORMATION				
1. Corn acreage base	100 A.	_____	XXXX	_____
2. Acres of corn planted	90 A.	_____	100 A.	_____
3. Acres set aside (line 2 x .111)	10 A	_____	XXXX	_____
4. Program yield	125 bu.	_____	_____	_____
5. Program production (line 4 x line 2)	11,250 bu.	_____	XXXX	_____
6. Expected yield	130 bu.	_____	125 bu.	_____
7. Expected production (line 2 x line 6)	11,700 bu.	_____	12,500 bu.	_____
EXPECTED GROSS INCOME				
8. Expected grain return				
a. loan and harvest sales	11,700 bu. _____ x \$2.55 = _____ \$29,835 _____		800 bu. _____ x \$2.45 = _____ \$1,960 _____	
b. stored sales and gain on loan	11,700 bu. _____ x \$.25 = _____ \$ 2,925 _____		11,700 bu. _____ x \$2.80 = _____ \$32,760 _____	
9. Deficiency payment (line 5 x (\$3.03 - 5 mo. price or max. \$.48) .33	3,712	_____	XXXX	XXXX
10. Int. on harvest grain sales or loan (line 8a x 12% x 9/12)	2,685	_____	176	_____
11. TOTAL GROSS INCOME EQUIVALENT AT LOAN MATURITY (sum lines 8-10)	\$39,157	_____	\$34,896	_____
EXPECTED CASH EXPENSES				
CROP				
12. Fertilizer (\$58/A x line 2)	\$ 5,220	_____	\$ 5,800	_____
13. Seed, pest., etc. (\$45/A x line 2)	4,050	_____	4,500	_____
14. Mchy. fuel & reprs. (\$34/A x line 2)	3,060	_____	3,400	_____
15. Drying and storage (\$.22/bu. x line 7)	2,574	_____	2,750	_____
COVER CROP				
16. Seed and crop (\$8/A x line 3)	80	_____	XXXX	XXXX
17. Mchy. fuel & reprs. (\$12/A x line 3)	120	_____	XXXX	XXXX
OTHER CASH EXPENSES AND WITHDRAWALS				
18. Interest on crop expenses (sum lines 12-17 x 12% x 6/12)	906	_____	987	_____
19. Interest on redeemed loan (line 8a x 10% x 9/12)	2,238	_____	XXXX	_____
20. _____	---	_____	---	_____
21. TOTAL CASH EXPENSES AND WITHDRAWALS (sum lines 12-20)	\$18,248	_____	\$17,437	_____
INCOME ABOVE EXPENSES AND WITHDRAWALS (line 11 minus line 21)	\$20,909	_____	\$17,459	_____
NET ADVANTAGE FOR PARTICIPATION (Column 1 minus Column 2)	\$ 3,450	_____		_____

PROGRAM INFORMATION

1. Program crop base
 2. Actual planted acres
 3. Acres in PIK (line 1 x % PIK)
 4. Req. reduced acres (line 2 + 3 x .4286)
 5. Program yield
 6. Program production (line 2 x line 5)
 7. Expected PIK bu. pymt. (line 3 x line 5 x 75%)
 8. Expected yield
 9. Expected production (line 2 x line 8)
- INCOME
10. Grain returns (line 9 x \$3.00/bu. or loan \$)
 11. Deficiency payment (line 6 x \$1.00/bu.)
 12. PIK income (line 7 x \$3.45/bu.)
 13. Other income or reduced costs
 14. Total income (line 10, 11, 12 + 13)
- VARIABLE COSTS
15. Program crop
 - a. Fert. & crop (line 2 x \$50/A.)
 - b. Mch. fuel & rep. (line 2 x \$20/A.)
 - c. Dry and store (line 8 x \$ /bu.)
 - Cons. use (line 3 + 4 x \$20/A.)
 16. Other
 17. Other *12% interest on variable costs for 6 mo.*
 18. Total costs (lines 15 + 16 + 17 + 18)
 19. NET RETURNS OVER VARIABLE COSTS -WHEAT ONLY
 20. Line 15 minus line 19
- DOUBLE CROP INFORMATION
21. Acres of **SOYBEANS**
 22. Yield
 23. Gross income (line 21 x 22 x \$6.50/bu.)
 24. Variable costs
 - a. Fert. & crop (line 21 x \$50/A.)
 - b. Mch. fuel & repr. (line 21 x \$15/A.)
 - c. Dry & store (line 21 x 22 x \$ /bu.)
 25. Other *12% interest on variable costs for 6 mo.*
 26. Total cost (Lines 24 + 25)
 27. DC return over variable (Line 23 minus line 26)
 - WHEAT & DOUBLE CROP NET RETURNS (Line 20 + line 27)

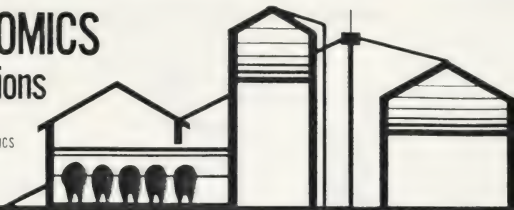
Non-Parti- cipation	Basic RAP Program	RAP + 10% PIK	RAP + 20% PIK
100	100	100	100
100	70	60	50
xxxxx	xxxxx	10	20
xxxxx	30	30	30
xxxxx	54	54	54
xxxxx	3,780	3,240	2,700
xxxxx	xxxxx	405	810
54	58	60	62
5,400	4,060	3,600	3,100
16,200	12,180	10,800	9,300
xxxxx	3,780	3,240	2,700
xxxxx	xxxxx	1,397	2,795
-	-	-	-
16,200	15,960	15,437	14,795
5,000	3,500	3,000	2,500
2,000	1,400	1,200	1,000
xxxxx	600	800	1,000
-	-	-	-
420	330	300	270
7,420	5,830	5,300	4,770
8,780	10,130	10,137	10,025
100	70	60	50
20	20	20	20
13,000	9,100	7,800	6,500
5,000	3,500	3,000	2,500
1,500	1,050	900	750
-	-	-	-
390	273	234	195
6,890	4,823	4,134	3,345
6,100	4,277	3,666	3,055
14,890	14,407	13,803	13,080



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August 1, 1983

Valuing Farm Input Handbook
Section 4 - No. 1

83-18/Guide for Adjusting Custom Rates and Machine Rental Rates for 1983-84

Custom field operation rates are charges made for the use of field equipment, the time of the operator, necessary mechanical power, other supplies furnished, such as tractor fuel, wire or twine for baler, and an allowance for risk and overhead. Rental rates are for the use of the power unit and the machine only. There are two methods of establishing the charge for a particular operation. One is the market rates charged. The other is the cost of performing the operation or providing the machine services.

CUSTOM RATE COST INDEX

In the absences of current market rates, index numbers of prices paid by farmers for selected classes of expenditures can be used to adjust historical market rates for increased costs. Index of prices paid by U.S. farmers for selected production items directly related to the costs of providing custom farm operations are presented in Table 1. The weightings of the four items for the calculated custom rate cost index are as follows: tractors and self-propelled machinery 30%; other machinery and implements 25%; fuel and energy 15%; and farm wage rates 30%. The base for each index is 1977. The data in the column -- percent change from previous year -- uses the previous year as the base. The custom rate cost index assumes custom rates are based on costs of performing operations and no change in the efficiency of performing the operation.

Table 1. CALCULATED CUSTOM RATE COST INDEX AND ANNUAL CHANGES, 1977-1982

Year	Index of Prices Paid by U.S. Farmers for Production Items 1977=100a/				Estimated custom rate cost index b/	Percent change from previous year
	Tractors and self-propelled machinery	Other ma- chinery and implements	Fuels and energy	Wage rates		
1977	100	100	100	100	100.0	--
1978	109	108	104	107	107.4	7.4
1979	121	119	137	117	121.7	13.3
1980	136	132	188	126	139.8	14.9
1981	152	146	213	136	154.8	10.7
1982	165	160	211	143	164.0	5.9
1983 c/	174	171	206	148	170.0	3.6

FOOTNOTES (a) Source: Agricultural Prices, SRS, USDA. (b) Tractors and self-propelled machinery weighted by 30% other machinery and implements 25%, fuel and energy 15%, and wage rates 30%. (c) June 15 estimates and June to June change.

COSTS OF OWNING AND OPERATING POWER AND IMPLEMENTS

The cost of using replacement machines is another guide to establishing and adjusting custom rates. The short cut method of computing the direct use costs for individual power units and implements is illustrated by the example in the form on page two.

The direct use costs for typical sized machines at current replacement cost and at average performance levels are presented in Table 2. These direct use costs include depreciation interest, insurance, repairs, fuel and labor. There has been no allowance for profits, management, overhead or risk in these calculations.

There are three direct use values presented in Table 2. The value in the first column covers all direct use costs of power, implement, fuel and labor. The data in the second and third columns are for situations where the power and equipment units are rented out. Costs for both the tractor and implement are included in the second column. The third column has the ownership and operating costs for the implement only.

METHOD OF COMPUTING DIRECT COSTS OF OPERATING POWER AND IMPLEMENTS
(+ Estimated return for management, overhead and risk)

	Power unit (tractor or self- propelled unit)	Implement	Total													
1. Machine	<u>Tractor</u>	<u>Chisel Plow</u>														
2. Size	<u>180 HP</u>	<u>15 ft.</u>														
3. Purchase price	<u>\$69,920</u>	<u>\$4,000</u>														
4. Ownership and repair cost (see Table A)	<u>.0004</u>	<u>.0016</u>														
5. Hourly ownership and repair cost (3 x 4)	<u>\$27.97</u>	<u>\$6.40</u>														
6. Fuel and lubrication, cost per hour ^a	<u>\$14.74</u>	<u>\$ -</u>														
7. Total power and implement, cost per hour (5 + 6)	<u>\$42.71</u>	<u>\$6.40</u>	<u>= \$49.11</u>													
8. Labor cost per machine-hour on the job ^b				<u>\$ 8.66</u>												
9. Total costs per machine-hour on the job for operation (7 + 8)				<u>\$57.77</u>												
10. Units of work per machine-hour on the job (acres, bushels, tons, bales) ^c				<u>7.2</u> Unit												
11. Total cost per unit of work (9 ÷ 10)				<u>\$ 8.02</u>												
		10% rate	25% rate													
12. Adjustment for risk, time for moving from job, other overhead, and profit margin [line 11 x (10 to 25%)]		<u>\$</u>	<u>\$</u>													
13. Estimated machine hire rate per unit of operation		<u>\$</u>	<u>\$</u>													
a	<table><tr><td>.069 for gasoline</td><td>.75 for light load</td><td></td><td></td></tr><tr><td>.0504 for diesel</td><td>X 1.00 for ave. load</td><td><u>\$ 1.30</u></td><td>= <u>\$ 14.74</u></td></tr><tr><td>.0823 for LP gas</td><td>1.25 for heavy load</td><td>price per gallon</td><td>fuel cost per hour</td></tr></table>				.069 for gasoline	.75 for light load			.0504 for diesel	X 1.00 for ave. load	<u>\$ 1.30</u>	= <u>\$ 14.74</u>	.0823 for LP gas	1.25 for heavy load	price per gallon	fuel cost per hour
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Table A. Amount of Assumed Use, Assumed Ownership and Repair Costs Per Hour, Per Dollar of the List Price and Rates of Performance Coefficients to be Used in Estimating Costs of Operating Power and Implements

	Years of use (assumed)	Annual hours of use (assumed)	Cost of owner- ship and re- pair per hour, per dollar of list price	Speed (MPH)	Field- efficiency coefficient
Tractor	10	400	.0004	...	...
Basic combine	5	250	.0010	...	...
Corn head	5	150	.0016	3.0	.70
Grain head	5	100	.0023	3.0	.70
Tillage implements	10	100	.0016	5.0	.80
Motary hoe	10	100	.0016	9.0	.85
Row cultivator	10	100	.0016	4.0	.75
Fan and grain drill	8	75	.0026	5.0	.60
Fertilizer equipment	8	75	.0027	5.0	.70
Praying equipment	8	75	.0023	5.0	.60
ower	10	100	.0018	5.0	.80
ower conditioner, hay rake	10	100	.0016	5.0	.80
orage harvester, blower	10	100	.0016	3.0	.70
ay baler, forage wagon	10	100	.0015	4.0	.75
rain wagon	10	100	.0014	...	...
anure spreader	10	100	.0015	5.0	.70
iquid Manure spreader	10	100	.0016	...	...

NOTE: Costs were based on 5, 8, or 10 years of depreciated life, an interest rate of 12 percent, insurance at 1/2 percent, and housing at 1 1/2 percent of the remaining value of the beginning of the year. The purchase price was assumed to be 90 percent of the manufacturer's list price, plus freight and the dealer's setup cost.

Table 2. - DIRECT COSTS OF MACHINE SERVICES (excluding Management, Overhead and Risk)
(Guide to Custom and Rental Rates for Farm Equipment) a/

Field Operation	Unit	Power, machine fuel and labor Costs	Power and machine costs	Machine costs only
TILLAGE OPERATIONS				
Moldboard plowing	acre	\$ 13.50	\$ 8.75	\$ 3.25
Chiseling, 8"-10"	acre	8.00	4.75	1.00
Chiseling, 12"-18"	acre	11.50	7.25	2.25
Coulter chiseling	acre	10.00	6.50	2.50
Field cultivation	acre	5.00	3.00	1.25
Offset disking - reg.	acre	7.75	4.75	2.00
deep	acre	11.25	7.75	3.50
Tandem disking	acre	6.00	4.00	2.00
Disking and applying insecticide and herbicide	acre	7.50	5.00	2.75
Combination tool (disc - cult- level)	acre	7.50	4.75	2.00
Packer mulching	acre	5.25	3.25	1.75
Stalk shredding	acre	6.00	3.50	1.50
Row cultivating	acre	6.25	3.75	1.50
Rotary hoeing	acre	1.75	1.00	.50
TILLING AND PLANTING				
Field cultivating and planting corn or soybeans	acre	12.50	9.75	7.25
Packer mulching and drilling soybeans	acre	11.75	8.75	6.50
PLANTING				
Planting corn or soybeans only	acre	9.00	7.00	5.75
Planting corn or soybeans & applying chemicals	acre	9.50	7.50	6.25
No till planting	acre	11.75	9.50	7.50
Drilling small grain	acre	8.75	6.00	4.25
No till drilling	acre	13.00	10.00	7.75
Power till seeding	acre	12.00	8.50	6.25
Broadcast seeding	acre	1.50	.50	.15
APPLYING FERTILIZER				
Anhydrous ammonia	acre	5.25	3.50	2.00
Mixed dry fertilizer	acre	2.00	1.25	.70
SPRAYING (excluding materials)				
Field spraying	acre	3.25	2.00	.75
Fence row spraying	hour	27.50	----	----
Rope wick applying	acre	2.75	1.00	.20

(This table is continued on the next page.)

Table 2. - DIRECT COSTS OF MACHINE SERVICES (excluding Management, Overhead and Risk)
(Guide to Custom and Rental Rates for Farm Equipment) a/

Field Operation	Unit	Power, machine fuel and labor costs	Power and machine costs	Machine costs only
HARVESTING GRAIN				
Combine soybeans or wheat	acre	\$ 24.00	\$ -----	\$ 20.00
Combine corn	acre	28.00	-----	24.00
Combine and store	bu.	.30	-----	-----
Pick and store ear corn	acre	40.00	25.00	16.00
Haul grain	bu.	.08	.03	-----
Dry grain	bu. point	.0225	-----	.012
HARVESTING FORAGES				
Mowing hay	acre	5.00	2.25	1.00
Mow, condition, windrow	acre	8.50	5.50	3.50
Raking hay	acre	5.00	2.25	1.00
Baling sq. bales - wire tie	bale	.32	.13	.07
-twine tie	bale	.24	.12	.06
Baling large round bales	bale	4.75	2.75	1.75
Stacking (1 1/2 tons)	stack	7.00	4.50	2.50
Stacking and moving	stack	9.00	5.50	2.75
Field chop only - corn				
silage - 2 row chopper	hou*	48.00	33.00	21.50
	ton	2.70	1.85	1.20
Silo filling with 2 row				
chopper wagons & blowers	hour	86.50	-----	-----
	ton	4.80	-----	-----

a/ Adapted from Computation of Costs of Performing Farm Operations, Pricing and Valuing Farm Input Handbook - Section 4 - No. 3.

The estimated costs of using machines and changes in custom rate index are starting points for establishing a custom rate for a particular situation. The supply and demand of machinery and adverse field and weather conditions alter the appropriate custom rate from case to case.

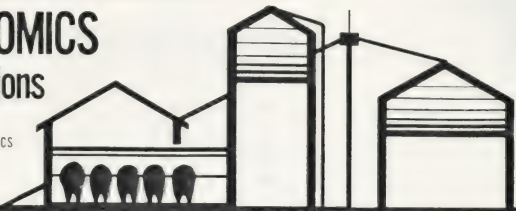
R. A. Hinton *R. B. Schwart*
R. A. Hinton R. B. Schwart
Extension Specialist-Farm Management



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1983

83-19/All-Risk, Multiple Peril, Federal Crop Insurance for Wheat and Other 1984 Crops

The Federal or Multiple Peril Crop Insurance Program is one means that a crop producer can use to reduce some of the production risk for most of the crops he raises. It covers unavoidable production losses due to any adverse weather conditions, including drought, excessive rain, hail, and wind. It also covers unavoidable losses due to insect infestation, plant disease, wild life, fire, and earthquake. Crop insurance does not cover losses due to neglect, poor farming practices, or theft.

In most Illinois counties, the crops covered include corn, grain sorghum, soybeans, oats, wheat, and barley. Specialty crops such as hybrid seed corn, canning peas, and sweet corn are covered in some counties. The insurance policies for these crops are sold by local agents of private insurance companies. Each county's Agricultural Stabilization and Conservation Service (ASCS) office has a list of the crops covered and the agents offering All-Risk Crop Insurance policies as well as the schedule of dates for completing the steps in applying for and continuing insurance coverage.

APPLYING FOR INSURANCE

The producer and the insurance agent must complete the application for each crop by its *sales closing date*. The date varies by crop and by area. In most Illinois counties the closing dates are: September 30 for wheat; March 31 for oats; and April 30 for corn, grain sorghum, and soybeans.

When the application is accepted, the producer receives a copy of the policy and a policy confirmation identifying the contract number. The insurance attaches to the crop at the initial planting as long as that planting occurs prior to the county's assigned *final planting date*. For wheat the final planting date varies from October 31 to November 10.

To establish the crop coverage, the producer must file an acreage report with the insurance agent by the *acreage reporting date*. This report must include contract number, ASCS farm number, location of fields, number of acres planted, date planted, practices where applicable, and share in crop.

Policyholders have the option of deleting hail and fire protection from their policies providing they purchase at least an equal amount from a private insurance company. Those who opt out of this coverage will pay lower FCIC premiums.

Producers can choose to insure their crops for 50, 65, or 75 percent of the average yield of the risk area. They also can choose from three commodity price levels (Table 1). Eighteen coverage options are available for each geographical risk area classification (3 price levels and 3 yield levels, each with or without hail and fire protection). Premiums are calculated by the rate at each level of coverage. The higher the production and price levels, the higher the premiums.

Table 1. Price Elections for Insurable Crops, Illinois, 1983

Crop	Price elections, dollars per bushel		
	A	B	C
Barley	\$2.00	\$2.25	\$2.60
Corn	2.00	2.40	2.70
Grain sorghum	2.00	2.40	2.60
Soybeans	4.50	5.25	6.00
Wheat	2.50	3.50	4.00

The FCIC insurance provides protection for physical quantity and quality losses for the total insured unit. The unit is usually defined as the ASCS farm unit. If harvested yield is less than the insured level because of natural conditions, the unit loss is valued at the price level chosen.

EXAMPLE OF PREMIUMS COST AND INDEMNITY PAYMENT CALCULATIONS

Assume a wheat producer is located in risk area 6 (Table 2). The ten-year average expected yield is 44 bushels per acre. If the wheat crop is insured at level 2 for 65 percent of yield, the producer will be assured of 28.5 bushels per acre from crop sales or indemnity insurance payments. At a price option of \$3.50, the premium would be calculated as 28.5 (guaranteed yield) x \$3.50 x .021 (premium rate) = \$2.09 per acre.

Table 2. Example County Actuarial Table, Wheat, Illinois, 1983

Risk area	Level 1: 50% normal yield			Level 2: 65% normal yield			Level 3: 75% normal yield		
	Yield guarantee, bushels	Basic subsidized rate, percent	Without hail, fire protection, percent	Yield guarantee, bushels	Basic subsidized rate, percent	Without hail, fire protection, percent	Yield guarantee, bushels	Basic subsidized rate, percent	Without hail, fire protection, percent
1	10.0	24.2	20.6	12.0	33.3	28.6	15.0	51.4	43.7
2	11.5	19.3	16.5	14.5	26.5	22.5	17.0	41.0	34.8
3	15.5	2.2	1.9	20.5	3.1	2.6	23.5	4.7	4.0
4	18.0	1.9	1.6	23.5	2.6	2.2	27.0	4.0	3.4
5	19.5	2.8	2.4	25.5	3.9	3.3	29.5	5.9	5.1
6	22.0	1.5	1.3	28.5	2.1	1.8	33.0	3.3	2.8

Should the actual yield on all acres planted to wheat be only 22 bushels, the covered unit loss would be the difference between the unit guarantee and the actual yield. Given the previous example, the indemnity payment would be 28.5 minus 22.0 x \$3.50 = \$22.75 per acre. Indemnity checks are issued about 30 days after submission of claims.

PAYING THE PREMIUM

The producer receives a premium billing around harvest. Interest begins to accrue on any unpaid premium balance the month following the billing. Failure to pay the premium for the previous year by the sales closing date terminates the insurance contract.

CONTINUATION OF INSURANCE

The insurance contract renews automatically unless cancelled or terminated.

RECENT IMPROVEMENTS IN CROP INSURANCE COVERAGE

The level of protection offered by Federal Crop Insurance has been improved greatly in recent years. Early programs offered coverage for cash expenditures only. Beginning in 1982,

additional income protection was given through the 50, 65, and 75 percent yield coverage levels and the three price level options.

In 1983, further improvements were made. The coverage was extended to more crops in more counties. Coverage is now available in some areas that were previously considered uninsurable. In addition, several changes were made to make the crop insurance coverage more attractive to farmers. These changes include:

1. Individual Yield Coverage Plan (IYCP), providing protection based on individual producers' yield histories rather than county average yield, therefore enabling producers to qualify for higher production guarantees without increasing per-acre premium costs;
2. Elimination of penalties for not harvesting corn and soybeans and a replant payment provision to cover cost of replanting;
3. A late planting option to provide coverage if producers are not able to plant by FCIC final planting dates due to excessive moisture; and
4. Lowering of the indemnity reduction when producers opt out of all-risk hail and fire coverage and later sustain losses.

INDIVIDUAL YIELD COVERAGE PLAN (IYCP)

From the standpoint of most producers, the most beneficial change in the all-risk crop insurance is the new individual yield coverage plan. It allows farmers with yield histories of at least 3 years to insure for higher production levels. Following is an example of a calculation of an individual certified yield.

Sample Calculation of an Individual Certified Yield

Certified yield per acre from producer's records		SRS* county yield per acre
1981	74.0	52.4
1982	56.0	43.8
1983	60.0	N.A.

$$\text{Producer's Yield Index} = (74 + 56) \div (52 + 44) = 1.35.$$

*Illinois Cooperative Crop Reporting Service.

If the 10-year county average yield is 42 bushels, then the IYCP yield calculation then becomes:

$$\text{Producer's records (3 years: } 74 + 56 + 60) \quad 190$$

$$42 \times 1.35 = 57 \text{ for each of 7 missing years} \quad \frac{399}{589}$$

$$589 \div 10\text{-year base} = 59 \text{ bushels per acre, IYCP acreage yield (rounded to nearest whole bushel)}$$

Suppose now that this producer had a risk area coverage yield of 44 bushels per acre. This is the yield used by the producer to decide on the 50, 65, or 75 percent level of coverage guarantee. However, now the wheat producer can use the 59-bushel IYCP yield as the base to insure his crop at the same premium cost as the 44-bushel risk area coverage yield.

It is the producer's responsibility to request an IYCP average yield, to furnish the county ASCS office with evidence of production, and to provide the IYCP certification form to the insurance agent. The request for IYCP coverage and supporting records must be submitted to ASCS at least 15 days prior to the crop acreage reporting date. For 1984 wheat, the Illinois acreage reporting date ranges from November 1 to November 15.

EVALUATING THE ALL-RISK INSURANCE PROGRAM FOR YOUR FARM

Insurance is a means by which the small chance of a large loss is converted into a certain small loss. In farming, insurance can be in the form of formal policies on structures, crops, or life and in the form of informal arrangements, such as money for a rainy day, extra feed held against crop failure, or diversified enterprises combination.

Formal and informal types of insurance are basically the same. Both have costs, such as premium payments in the case of formal insurance and loss of income in the case of informal insurance. Furthermore, dollar costs generally exceed dollar gains, that is, premium payments to an insurance company must exceed indemnity payments to the insured by an amount large enough to cover administrative costs and company profits. This excess of dollar costs over dollar returns makes it evident that producers do not insure to make money; they insure for security or safety.

In evaluating crop insurance alternatives, first estimate the minimum level of cash flow necessary for the business to survive. Usually this would include cash farm operating expenses, interest and principal due on borrowed capital, and cash for family living expenses. At average prices these cash flows can be translated into quantities or yields of grain necessary to maintain the solvency of the business. Second, determine that the crop insurance program offers a guaranteed yield equal to or greater than the minimum yield. Third, be convinced that a yield below this minimum is possible. Fourth, calculate income with and without insurance, and lastly judge whether or not the average income or at least the utility of the average income after paying the insurance premium and receiving any indemnities is greater than the average income without insurance.

The actuarial crop insurance premium percentage rate in each county risk area (Table 2) represents the approximate probability of a yield below the coverage rate. Through the 65 percent coverage level, the federal government subsidizes the rates at 30 percent to cover administrative costs. This feature of Federal Crop Insurance makes it more attractive than other types of formal insurance. Thus technically, on the average over time, insurance up to this level of coverage is nearly costless to participants in the all-risk crop insurance plan. The total amount of the insurance premiums collected will be returned as pay-outs for indemnity claims. However, this need not be true for individual producers. The avoidance of catastrophic losses is still the major consideration in deciding to participate in the crop insurance at the appropriate level of coverage.

R. A. Hinton

R. A. Hinton, Extension Specialist, Farm Management

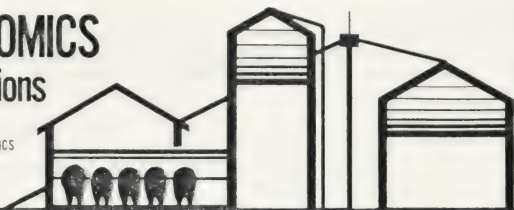
This information is being made available to wheat producers at the request of the Wheat Industry Resource Committee through the Illinois Cooperative Extension Service and with the assistance of the Federal Crop Insurance Corporation and the Agricultural Stabilization and Conservation Service.



FARM ECONOMICS

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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1983

83-20/Farm Leases: Variable Cash Rent

Over the last 5 to 10 years, the number of land parcels rented on a cash rent basis in Illinois has approximately doubled (from about 10 or 12 percent to about 20 to 23 percent), and the number of crop-share leases has declined. The cash lease has been attractive to landowners (the lessors) because it reduces their management responsibilities, provides them with a known, more or less riskless income, and in many cases gives them a higher rent than they could have received on a more traditional share lease. It has also been attractive to many farm operators (the lessees). They have rented land they otherwise could not have obtained, they acquire full management of operations, and they reduce the accounting problems with multiple landlords. However, they do take on greater risk and higher cash flow requirements. In theory the cash rent to the lessor should be less than the share rent because the share rent requires sharing of both yield and price risk with the lessee and more management and accounting on the part of the lessor. But because of the recent high demand for farmland at almost any price, farm operators bid the cash rent to higher levels.

Now, because of the lower profits to many crop farm operators in the last two years and because of the drought experienced by many this year, we expect some significant changes in leasing practices. Some bankers are recommending that farm operators return to the share rent to reduce risk and lower cash flow requirements. We have recommended for several years that cash leases should have a variable rent clause to shift some of the yield and price risk to the landowner. Without such an arrangement, a number of tenants will be forced out of business in years when they get low yields or low prices.

We do not expect much expansion in the number of cash leases at this time; in fact, we expect to see considerable pressure by some tenants to return to the share lease or to substantially reduce the cash rent they have been paying. Unless some arrangement is made to share the risk with the landowner on a cash-rented farm, the cash rent should be lower than the share rent to offset the risk to the tenant.

The "Illinois Cash Farm Lease," published by the Illinois Cooperative Extension Service, does provide for variable cash rent if "Method 3" in the lease form is used to calculate the rent. In this method, the cash rent agreed upon is a specified number of bushels of grain times an average price (usually determined during harvest time) at the local elevator. The number of bushels of grain is adjusted up or down relative to the actual yield outcome or the county yield outcome compared to the yields for a base period. Since this adjustment allows for both price and yield changes, the risks are shared.

In a good crop year or as technological improvements such as improved crop varieties increase yields, the landowner shares in all increases. At the same time, in a poor crop year such as 1983, the landowner shares the cost of disaster with the tenant.

The variable cash rent formula is as follows:

$$\text{Cash rent} = \frac{\text{Bushels agreed to in the lease}}{\text{Base yield}} \times \frac{\text{Yield this year}}{\text{Base yield}} \times \frac{\text{Price of grain this year}}{\text{Base yield}}$$

For example, assume that 40 bushels of corn is agreed on as the bushel rent; the base yield is the previous 5-year county average—say 120 bushels per acre; this year's county yield falls to 80 bushels, and the harvest price is \$3.40 per bushel. Then the rent would be $40 \times \frac{80}{120} \times 3.40$, or \$90.67 per acre.

This procedure allows for sharing of price and yield changes between the landowner and the farm operator similar to the sharing allowed by the crop share lease, while retaining many of the advantages of the cash lease perceived by both the landowner and the tenant.

The bushel rent agreed to in the lease is negotiated and will depend on the quality of the farm and the demand for land in the community where the farm is located. As a rule of thumb, rent is one-third of the expected normal yield if the landowner is paying only the real estate taxes and normal maintenance of his real estate. The range is likely to be from about 25 percent on low-yielding farms to as much as 35 to 40 percent on the highest-yielding farms.

Remember that the traditional crop-share lease probably provides the best adjustment for prices and yields over time because it is automatically self-adjusting. It also provides some sharing of production costs if they increase.

These guidelines are provided to help both landowners and tenants as they negotiate their leases for the coming year during a period of stress for all concerned.

John T. Scott, Jr.

Prepared by John T. Scott, Jr.

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University of Illinois
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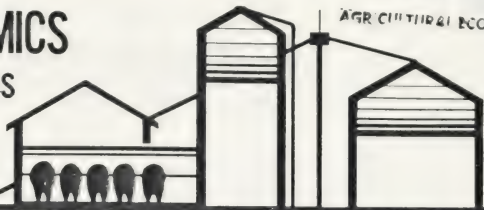
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FARM ECONOMICS

Facts and Opinions

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URBANA, ILLINOIS 61801



September, 1983

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The FCIC insurance provides protection for physical quantity and quality losses for the total insured unit. The unit is usually defined as the ASCS farm unit. If harvested yield is less than the insured level because of natural conditions, the unit loss is valued at the price level chosen.

EXAMPLE OF PREMIUMS COST AND INDEMNITY PAYMENT CALCULATIONS

Assume a wheat producer is located in risk area 6 (Table 2). The ten-year average expected yield is 44 bushels per acre. If the wheat crop is insured at level 2 for 65 percent of yield, the producer will be assured of 28.5 bushels per acre from crop sales or indemnity insurance payments. At a price option of \$3.50, the premium would be calculated as 28.5 (guaranteed yield) x \$3.50 x .021 (premium rate) = \$2.09 per acre.

Table 2. Example County Actuarial Table, Wheat, Illinois, 1983

Risk area	Level 1: 50% normal yield			Level 2: 65% normal yield			Level 3: 75% normal yield		
	Yield guarantee, bushels	Basic subsidized rate, percent	Without hail, fire protection, percent	Yield guarantee, bushels	Basic subsidized rate, percent	Without hail, fire protection, percent	Yield guarantee, bushels	Basic subsidized rate, percent	Without hail, fire protection, percent
1	10.0	24.2	20.6	12.0	33.3	28.6	15.0	51.4	43.7
2	11.5	19.3	16.5	14.5	26.5	22.5	17.0	41.0	34.8
3	15.5	2.2	1.9	20.5	3.1	2.6	23.5	4.7	4.0
4	18.0	1.9	1.6	23.5	2.6	2.2	27.0	4.0	3.4
5	19.5	2.8	2.4	25.5	3.9	3.3	29.5	5.9	5.1
6	22.0	1.5	1.3	28.5	2.1	1.8	33.0	3.3	2.8

Should the actual yield on all acres planted to wheat be only 22 bushels, the covered unit loss would be the difference between the unit guarantee and the actual yield. Given the previous example, the indemnity payment would be 28.5 minus 22.0 x \$3.50 = \$22.75 per acre. Indemnity checks are issued about 30 days after submission of claims.

PAYING THE PREMIUM

The producer receives a premium billing around harvest. Interest begins to accrue on any unpaid premium balance the month following the billing. Failure to pay the premium for the previous year by the sales closing date terminates the insurance contract.

CONTINUATION OF INSURANCE

The insurance contract renews automatically unless cancelled or terminated.

RECENT IMPROVEMENTS IN CROP INSURANCE COVERAGE

The level of protection offered by Federal Crop Insurance has been improved greatly in recent years. Early programs offered coverage for cash expenditures only. Beginning in 1982,

additional income protection was given through the 50, 65, and 75 percent yield coverage levels and the three price level options.

In 1983, further improvements were made. The coverage was extended to more crops in more counties. Coverage is now available in some areas that were previously considered uninsurable. In addition, several changes were made to make the crop insurance coverage more attractive to farmers. These changes include:

1. Individual Yield Coverage Plan (IYCP), providing protection based on individual producers' yield histories rather than county average yield, therefore enabling producers to qualify for higher production guarantees without increasing per-acre premium costs;
2. Elimination of penalties for not harvesting corn and soybeans and a replant payment provision to cover cost of replanting;
3. A late planting option to provide coverage if producers are not able to plant by FCIC final planting dates due to excessive moisture; and
4. Lowering of the indemnity reduction when producers opt out of all-risk hail and fire coverage and later sustain losses.

INDIVIDUAL YIELD COVERAGE PLAN (IYCP)

From the standpoint of most producers, the most beneficial change in the all-risk crop insurance is the new individual yield coverage plan. It allows farmers with yield histories of at least 3 years to insure for higher production levels. Following is an example of a calculation of an individual certified yield.

Sample Calculation of an Individual Certified Yield

Certified yield per acre from producer's records	SRS* county yield per acre
1981 74.0	52.4
1982 56.0	43.8
1983 60.0	N.A.

$$\text{Producer's Yield Index} = (74 + 56) \div (52 + 44) = 1.35.$$

*Illinois Cooperative Crop Reporting Service.

If the 10-year county average yield is 42 bushels, then the IYCP yield calculation then becomes:

$$\begin{aligned} &\text{Producer's records (3 years: } 74 + 56 + 60) && 190 \\ &42 \times 1.35 = 57 \text{ for each of 7 missing years} && \underline{399} \\ & && 589 \\ &589 \div 10\text{-year base} = 59 \text{ bushels per acre, IYCP acreage yield} \\ &\quad \text{(rounded to nearest whole bushel)} \end{aligned}$$

Suppose now that this producer had a risk area coverage yield of 44 bushels per acre. This is the yield used by the producer to decide on the 50, 65, or 75 percent level of coverage guarantee. However, now the wheat producer can use the 59-bushel IYCP yield as the base to insure his crop at the same premium cost as the 44-bushel risk area coverage yield.

It is the producer's responsibility to request an IYCP average yield, to furnish the county ASCS office with evidence of production, and to provide the IYCP certification form to the insurance agent. The request for IYCP coverage and supporting records must be submitted to ASCS at least 15 days prior to the crop acreage reporting date. For 1984 wheat, the Illinois acreage reporting date ranges from November 1 to November 15.

EVALUATING THE ALL-RISK INSURANCE PROGRAM FOR YOUR FARM

Insurance is a means by which the small chance of a large loss is converted into a certain small loss. In farming, insurance can be in the form of formal policies on structures, crops, or life and in the form of informal arrangements, such as money for a rainy day, extra feed held against crop failure, or diversified enterprises combination.

Formal and informal types of insurance are basically the same. Both have costs, such as premium payments in the case of formal insurance and loss of income in the case of informal insurance. Furthermore, dollar costs generally exceed dollar gains, that is, premium payments to an insurance company must exceed indemnity payments to the insured by an amount large enough to cover administrative costs and company profits. This excess of dollar costs over dollar returns makes it evident that producers do not insure to make money; they insure for security or safety.

In evaluating crop insurance alternatives, first estimate the minimum level of cash flow necessary for the business to survive. Usually this would include cash farm operating expenses, interest and principal due on borrowed capital, and cash for family living expenses. At average prices these cash flows can be translated into quantities or yields of grain necessary to maintain the solvency of the business. Second, determine that the crop insurance program offers a guaranteed yield equal to or greater than the minimum yield. Third, be convinced that a yield below this minimum is possible. Fourth, calculate income with and without insurance, and lastly judge whether or not the average income or at least the utility of the average income after paying the insurance premium and receiving any indemnities is greater than the average income without insurance.

The actuarial crop insurance premium percentage rate in each county risk area (Table 2) represents the approximate probability of a yield below the coverage rate. Through the 65 percent coverage level, the federal government subsidizes the rates at 30 percent to cover administrative costs. This feature of Federal Crop Insurance makes it more attractive than other types of formal insurance. Thus technically, on the average over time, insurance up to this level of coverage is nearly costless to participants in the all-risk crop insurance plan. The total amount of the insurance premiums collected will be returned as pay-outs for indemnity claims. However, this need not be true for individual producers. The avoidance of catastrophic losses is still the major consideration in deciding to participate in the crop insurance at the appropriate level of coverage.

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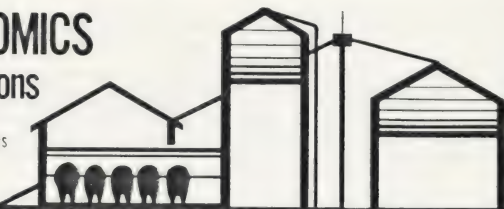
This information is being made available to wheat producers at the request of the Wheat Industry Resource Committee through the Illinois Cooperative Extension Service and with the assistance of the Federal Crop Insurance Corporation and the Agricultural Stabilization and Conservation Service.



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



October, 1983

83-21/New Factors in the Land Market

Last year's land market reflected the worst price decline in 50 years. Prices reached their low in the Corn Belt around December 1, 1982. Through the late 1970s, land prices rose faster in the cash corn and soybean areas than in other parts of the Midwest. With the drop in corn and bean prices in late 1981, land prices came down faster in 1981 and 1982, when compared with the consumer price index, than they did in 1930 and 1931, with a decline of 20 percent to 30 percent from the high. When adjusted for the cost of living index, which continued to rise through 1982, land prices were off by 1/3 or more from their 1980 high by the end of 1982. This situation placed great stress on both farmers and lenders. Some landowners had to liquidate at unexpectedly low prices, barely covering their mortgage balances. There have been a few well-publicized mortgage foreclosures, but as a percentage, the dropout so far has been small.

Then two things happened: interest rates came down by 20 to 30 percent, and the most aggressive corn and wheat reduction program since the 1930s was put in place by the government. The payment-in-kind program had an immediate price effect in the corn market, increasing cash prices by 50 to 60 cents per bushel, and a strong psychological effect on farmers, who became more optimistic about grain prices.

These two factors had a spillover effect on the land market. In the fall of 1982, there was almost no activity in the land market. Auctions were going sour, with small crowds of on-lookers, few bidders, and prices that were unacceptable to both sellers and mortgage holders. In the first eight months of 1983, this situation has changed. Land prices have strengthened, there is activity in the market, and both farmer and absentee investors are again interested in buying land. Land is being sold privately at higher prices, and auctions are doing better. Prices are at least two hundred dollars to as much as five hundred dollars per acre above the December, 1982, low. The Federal Reserve Bank of Chicago survey showed an increase of 3 to 7 percent in its Illinois region in the spring of 1983, with much smaller increases in our neighboring states. But there are increases throughout the Midwest. Illinois led the decline, and it now looks as though it is leading the recent increase. There are reasons for this: Illinois depends more on cash grain, more on exports, and less on hogs, cattle, and dairy than its neighboring states in the Corn Belt. When grain prices swing widely, land prices are likely to follow. In the dairy and livestock areas of Illinois, land prices have not fluctuated as widely as in the straight cash grain areas.

Will land prices hold at their current higher level, decline from here, or enter a new long-term uptrend? All the old factors are still working in the market: interest rates, grain yields, production costs, rate of inflation, domestic and foreign demand for products, and exchange rates. There is a new "old" factor--government programs--and now the drought. I expect land prices to be stronger still over the next 12 or 18 months in the areas with good 1983 crops, such as Minnesota, northern Iowa, Wisconsin, and northern Illinois. I expect land prices to weaken and decline in the areas most affected by the drought.

The need to introduce government programs in the beginning of 1983 shows that the demand side was weak. Exchange rates, foreign policy, and increasing production abroad have brought on a decline in exports. Higher government support prices further restrict exports. Exports

could expand over the next few years if world economic conditions become more favorable, but the rate of expansion is likely to be much less than it was in the 1970s.

With the greater dependence on exports, grain prices are likely to have larger fluctuations in the future than they have had in the past. Land prices in the Corn Belt also are likely to have larger swings along whatever land price trend line develops. Larger land downpayments, or land contracts with risk clauses so that some of the principal and interest can be postponed, may be needed to offset the greater purchase risk. Interest rates are not likely to drift much lower because of increased general economic activity and demand for money. As production costs continue to increase, a lower residual return is leftover for land.

It would be risky to assume that recent higher prices herald a new long-term uptrend in land prices. This may be just a breathing period. Given the factors in the market affecting land and the outlook for these factors, further decline in land values (at least relative to the consumer price index) is more likely over the next 5 or 10 years than an upward trend. The ability to produce continues to grow faster than the ability or financial capability to consume agricultural products. This is good for consumers but not so good for farmers--especially landowners. The land rent (which is the main support for land values in the long run) can be no more than what is leftover from the value of production after the production costs, including the farmers' labor, are deducted. It appears that land rents will be squeezed lower by a level or declining value of farm production over an extended time period and an increasing cost structure; hence, slowly declining land prices. This will persist until the increase in demand finally overtakes the increase in production. This will not occur until we get closer to the biological limits of our crops and livestock. These limits do exist, but they seem a long way off. Research continually pushes out the horizons.

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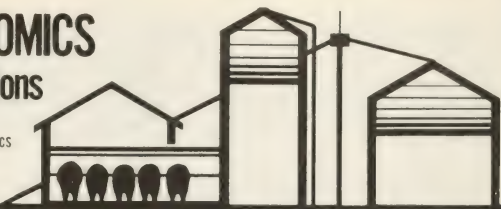
FIRST CLASS



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



December, 1983

Valuing Farm Input Handbook
Section 5, No. 1

83-17/1984 Wheat and Feed Grain Programs: Considerations in Crop Selection and Participation

The major factor to consider when finalizing plans for 1984 crop plantings is whether or not to participate in the 1984 Wheat and Feed Grain Acreage Reduction Program (ARP) and the Wheat Payment-In-Kind (PIK) Program. Sign up begins January 16, 1984, and ends February 24, 1984. Since producers who sign up will not be allowed to withdraw without a penalty, they should analyze carefully the alternatives in advance of sign up.

Other factors influencing the choice of crops grown and practices followed include carryover effects of the 1983 drought on the use of inputs, effects of the acres idled for payment-in-kind (PIK) and acreage-reduction programs (ARP) in 1983, cash availability, and increases in input prices. Lastly, the expected relationship of the prices for commodities will be important in deciding upon land use in the 1984 growing season.

THE 1984 WHEAT AND FEED GRAIN PROGRAMS

Provisions of the wheat and the feed grain programs for 1984 have been announced. To become eligible for target price protection, price support loans, and farmer-owned reserve programs, feed grain and wheat producers must comply with the acreage-reduction requirements. However, there is no required cross compliance between crops nor offsetting compliance between farms. The sign-up phase for both wheat and feed grain programs begins January 16, 1984, and ends February 24, 1984. A summary of the program provisions and payment rates is given in Table 1.

Table 1. Program Provisions and Payment Rates, 1984

	Corn	Sorghum	Barley	Oats	Wheat
Required acreage reduction (% of base)	10	10	10	10	30
Maximum planted acreage (% of base)	90	90	90	90	70
PIK land diversion (% of base)	NA	NA	NA	NA	10-20
PIK payment rate (% of yield base)	..	..	..	..	75
Target price	\$3.03	\$2.88	\$2.00	\$1.00	\$4.45
Nine-month loan price	2.55	2.42	2.08	1.31	3.30
Reserve loan price	2.55	2.42	2.08	1.31	3.30
Maximum deficiency payment rate	0.48	0.46	0.52	0.29	1.15

The major features of the wheat program call for a 30 percent unpaid acreage reduction and an optional 10 to 20 percent land diversion for payment-in-kind payments at the rate of 75 percent of established yield. Program participants will be eligible for a loan on their 1984 wheat of \$5.50 per bushel, national average, and deficiency payments based on a target price of \$4.45. Producers participating in PIK agree to accept PIK payments from their regular or reserve loans, or to harvest for PIK.

The feed grain program participants must reduce their acreage by 10 percent. Participants are eligible for a loan on their 1984 corn of \$2.55 per bushel and deficiency payments based upon a target price of \$3.03. The 1984 program for feed grains will have no diversion payments, no payment in kind, or no immediate entry into the farmer-owned reserve.

To be eligible for the farmer-owned reserve for both wheat and feed grains, farmers will have to take out a 9-month loan. Before the 9-month feed grain loans reach maturity, the Secretary of Agriculture could place a ceiling on the amount that could enter the reserve. Storage payments for both reserve corn and wheat are expected to continue at the present annual rate of \$.265 per bushel.

The acreage base for both feed grains and wheat on which acreage reduction will be figured is the acreage planted or considered to be planted to feed grains or wheat in 1982 and 1983. Acreage placed in the acreage reduction or PIK programs during 1982 or 1983 is considered to be planted for the purpose of establishing a feed grain and wheat acreage base. Actually, each farm has two feed grain bases, one for corn and grain sorghum and one for oats and barley.

The eligibility requirements for land placed in acreage-conservation reserve (ACR) and the cover crops to meet program requirements are the same as those for 1983 programs. Producers have until December 31, 1983, to appeal assigned yields and base acreages for all crops on these farms.

CROP PRODUCTION PLANS

You can determine the effects of different crop combinations (land use) and of participation in the feed grain and wheat program on your farm by making estimates for each crop plan. To prepare a systematic analysis of alternatives, you will need to make three major judgments about what you expect in terms of yields, variable costs of production, and market prices. You also will need information from the Agricultural Stabilization and Conservation Service regarding your base acreages of feed grains and wheat, program yields, and the specific requirements for participation in the 1984 feed grain and wheat programs on your farm.

Yields. Check your recent farm records. Base your projected yield on typical or average yields. Do not expect next year's situation to be like last year's. Consider field-to-field variations that might change your choice of crops.

costs. The typical costs of producing various crops are listed in Table 2. Use data in the table as a guide to estimating variable costs for the crops that you expect to grow. The costs are divided into variable costs, other costs, and land costs. The costs are for an owner operator; if you are a tenant, include only the portion of the cost items that you furnish.

The variable costs in Table 2 include those items incurred through harvest. If grain is stored, the added costs of storing should be included.

Market prices. The next step is to estimate the prices that you expect to receive for grain sold at harvest, placed under loan, or sold from storage. After that, determine the estimated gross returns from the crops you plan to raise. The level of market prices will depend upon the extent of participation in feed grain and wheat programs and the growing conditions for the 1984 crop. Current futures market quotations may be used to project prices. At a minimum, wheat and corn prices at harvest will equal the loan price less storage costs; stored prices should equal the loan price plus redemption interest cost.

Deficiency payment. Much of the difference in net crop income over variable costs between participants and nonparticipants in 1984 feed grain and wheat programs will depend upon the amount of the deficiency payments. The target price deficiency payment for corn depends upon the difference between the target price and the 5-month market price received by farmers. The maximum deficiency payment is \$0.48 for corn, the difference between the \$3.03 target price and the \$2.55 loan price. In the case of wheat, the maximum deficiency payment is \$1.15, the difference between the \$4.45 target price and the \$3.30 loan price. The deficiency payment rate will decline as the average 5-month average price rises above the loan and approaches the \$3.03 corn and \$4.45 wheat target prices.

COMPARING ALTERNATIVES

As a guide to crop combinations that might optimize net crop returns in your farming operation, the contributions of individual crops and idled acres at varying yields are presented in Table 3. The net return over variable cost figures indicates, in general, the effects of acreage shifts without a complete budget of the whole cropping system. For instance, a comparison of the \$181 net return over variable costs from a 135-bushel corn crop sold at harvest for \$2.50 per bushel with the net return of \$202 for a 45-bushel soybean crop sold at harvest for \$6.50 per bushel suggests that you shift some acres from corn to soybeans if you are not participating in the reduced-acreage program for corn. However, unless you expect the advantage to continue for the long run, you may not wish to reduce feed grain acres planted below the maximum base level because it will reduce base acreages for participation in future governmental programs.

Similarly, in evaluating possible participation in 1984 programs for feed grains and wheat, you should compare the expected return per idle acre in set aside with the returns from other crops. Although the 10 percent acreage reduction for corn and the 30 percent reduction for wheat is said to be without payment, one can consider the deficiency payment a return for the set-aside acres and compare this expected return with the returns from other crops.

The deficiency payment per acre set aside for corn or wheat on your farm can be estimated by multiplying your farm program yield by planted acres and dividing by the number of acres set aside and multiplying that amount by the deficiency payment rate. The calculated deficiency payment net return over variable costs for 125 bushel corn program yield is \$520 per acre set aside at the maximum deficiency payment rate of 48 cents. With only a 23 cent payment rate, the deficiency payment per set aside acre for 125 bushels program yield totals \$259 and would net \$239 over variable costs. Both of these net returns per acre idled exceed the \$181 and \$221 net returns for 135 bushel corn sold at harvest-time prices of \$2.50 and \$2.80. This comparison suggests that participation in the feed grain program would improve net crop returns, if five month average price of corn averages \$2.80 per bushel or less. However, if the quality of

land set aside as conservation acreage reserve has an expected yield lower than established program yield, then a higher price would be needed to generate equal returns.

For producers who have storage and are able to place their crop under loan or sell from storage later in the year, the net value of the stored crop over variable costs including additional storage costs should be compared.

EVALUATION OF PROGRAM PARTICIPATION ON CROP RETURNS

The effect of participation in the 1984 feed grain and wheat programs on farm crop returns depends upon several factors. Three major factors are (1) expected prices, (2) expected yields relative to program yields, and (3) the extent to which expenditures can be reduced by idling acres. Other factors are the level of payments for idled acres and the opportunity returns from land set aside in the Acreage Conservation Reserve. Producers should carefully budget the alternatives to their situation on attached worksheet, AE 4543: Income Possibilities: Participation vs. Nonparticipation in 1984 Government Programs for Corn or Wheat. Additional copies of this worksheet are available from county Extension offices.

CROP RETURNS FOR FEED GRAIN PROGRAM PARTICIPATION ALTERNATIVES

A summary of net returns over variable costs for program participation versus nonparticipation under varying price, yield, and storage situations is presented in Table 4. The results include four levels of price expectations. The prices used were \$2.25, \$2.45, \$2.65, and \$2.85 for harvest time and \$2.60, \$2.80, \$3.00, and \$3.20 for grain delivered from farm storage. The corresponding deficiency payments were \$0.48, \$0.33, \$0.13 and 0. The three yield situations were (1) realized yield 25 bushels less than 125 bushel program yield, (2) realized yield equal to 125 program yield, and (3) realized yield exceeding 125 bushel program yield by 25 bushels.

The data in Table 4 indicate that participation insures returns. The net returns from participation are similar at all price levels below the \$3.03 target price. On the average, the lower returns from the fewer acres and selling prices below the target price are offset by the higher deficiency payment. Without the price protection, the nonparticipant's net return varies directly with price. Participation in the program does not reduce production risks in that the level of returns varies directly with the level of realized yields.

The advantage for participation over nonparticipation is greater when farm storage is available. The producer can place his grain under loan and secure seasonal price improvements as well as have the use of cash to meet cash flow requirements for business expenses and withdrawals for living and debt obligations.

CROP RETURNS FOR WHEAT PROGRAM PARTICIPATION ALTERNATIVES

A summary of net returns over variable costs for program participation versus nonparticipation under varying yield and prices with and without a double crop of soybeans is presented in Table 5. The results include three levels of price expectations, \$3.00, \$3.60 and \$4.20, and corresponding deficiency payment levels of \$1.15, \$0.85, and \$0.25. The three yield situations were (1) realized yields 15 bushels less than 54 bushel program yield, (2) realized yield equal to 54 bushel program yield, and (3) realized yield 15 bushels greater than 54 bushel program yield. The double crop returns for a double crop yield of 20 bushels of soybeans was \$47 per acre for all program alternatives.

The greatest advantage for participation in wheat programs occurs with realized yields falling below program yields, low wheat prices, and no double crop of soybeans. When realized yields equal or exceed program yields, the net returns for nonparticipation are greater than any of the program participation alternatives.

SUMMARY

Although the 1984 program is on a much more limited scale than 1983, the decision to participate should be studied carefully. Program criticism by politicians or farm organization officials is not a sound basis for rejection. Rather, a careful analysis based on costs and possible returns from participation is a sounder basis for making a decision. As in past programs, participation helps to reduce risks. As with any insurance policy, there is some cost involved. In addition, participation in the programs aids soil conservation in that producers will be able to withdraw land from production that is subject to excessive erosion with little or no loss in income.

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Table 2. Estimated Costs Per Acre for Producing Crops, 1984

	Rotated corn (135 bu.)	Second- year corn (125 bu.)	Soybeans (45 bu.)	Wheat (54 bu.)	Oats (80 bu.)	Double crop soybeans (20 bu.)	Set aside cover crop	Alfalfa hay (4.5 tons)
Variable costs:								
Seed.....	\$ 21	\$ 21	\$ 13	\$ 10	\$ 8	\$ 16	\$ 4	\$ 9
Pesticides. . .	16	24	19	1	1	28	..	6
Fertilizer								
N.....	35	35	..	19	14	..	..	..
P, K, Lime. . .	26	23	23	19	15	9	4	52
Mchy. rep. & fuel	34	34	30	19	17	15	7	30
Dry. fuels & rep.	16	15	..	..	..	..	..	..
Interest on operating capital. . .	9	10	5	4	3	4	..	6
Total variable costs	\$157	\$162	\$ 90	\$ 72	\$ 58	\$ 72	\$ 15	\$103
Other costs:								
Mchy. depr. & int.	\$ 50	\$ 50	\$ 42	\$ 32	\$ 32	\$ 25	\$ 22	\$ 40
Labor.	21	21	20	10	10	10	5	40
Management	17	16	14	8	6	6	..	14
Storing (int.&bin)	31	29	22	14	13	9	..	34
Misc.	15	15	15	15	15	8	8	15
Total other costs. .	\$134	\$131	\$113	\$ 79	\$ 76	\$ 58	\$ 35	\$143
Land costs (cash rent).	\$100	\$100	\$100	\$100	\$100	\$	\$100	\$100
Total all costs. . .	\$391	\$393	\$303	\$251	\$234	\$130	\$150	\$346

Table 3. Comparison of Crop Returns Per Acre, 1984

	Yield or payment base per acre	Harvest price or payment rate per unit	Crop returns per acre	Variable cost per acre ¹	Net returns over vari- able costs per acre
Corn (bu.)	100	\$2.20	\$220	\$137	\$ 83
	100	2.50	250	137	113
	100	2.80	280	137	143
	135	2.20	297	157	140
	135	2.50	338	157	181
	135	2.80	398	157	221
	170	2.20	374	185	189
	170	2.50	425	185	240
	170	2.80	476	185	291
Deficiency for corn set aside					
100 bu. Program yield					
5 mo. price 2.55 or less	900 ² bu.	\$.48	432	20	412
	2.80	.23	207	20	187
	3.10	00	00	20	-20
125 bu. Program yield					
5 mo. price 2.55 or less	1,125 ² bu.	.48	540	20	520
	2.80	.23	259	20	239
	3.10	00	00	20	-20
150 bu. Program yield					
5 mo. price 2.55 or less	1,350 ² bu.	.48	648	20	628
	2.80	.23	310	20	290
	3.10	00	00	20	-20
Soybeans,					
Single crop, (bu.) . .	30	\$6.50	\$195	\$ 76	\$119
	45	6.50	292	70	202
	60	6.50	390	104	286
Double crop, (bu.) . .	15	\$6.50	\$ 98	\$ 67	\$ 31
	20	6.50	130	72	58
	25	6.50	162	77	85
Wheat (bu.)	36	\$3.00	\$108	\$ 60	\$ 48
	54	3.00	162	72	90
	72	3.00	216	87	129
Deficiency for wheat set aside					
Program yield, bu. . .	84 ² (36)	\$1.00	\$ 84	\$ 20	\$ 64
	105 ² (45)	1.00	105	20	85
	126 ² (54)	1.00	126	20	101
Wheat PIK payment					
75% program yield, bu..	27 (36)	\$3.45	\$ 93	\$ 20	\$ 73
	33.8 (45)	3.45	117	20	97
	40.5 (54)	3.45	140	20	120
Oats (bu.)	60	\$1.50	\$ 90	\$ 54	\$ 36
	80	1.50	120	58	62
	100	1.50	150	64	86
Hay (ton)	3.0	\$80	\$240	\$ 73	\$167
	4.5	80	360	103	257
	6.0	80	480	133	347

¹ Includes seed, pesticides, fertilizer, machinery repairs and fuel, drying costs and interest on operating capital only. Also includes bin costs for commodity loan situations.

² Production eligible for deficiency payment per acre set aside --

corn: program yield x .9 ÷ .1 acre set aside.

wheat: program yield x .7 ÷ .3 acres set aside.

Table 4. Net 1973 Returns over Variable Costs per Base Acre for Participation versus Nonparticipation in First Feed Grain Program for Corn

Tenure Situation, Time of Sale, and Price	Realized yield 25 bu. less than 125 bu.		Realized and program yields equal at 125 bu.		Realized yield 25 bu. greater than 125 bu.	
	Parti- cipate	Not partici- pate	Parti- cipate	Not partici- pate	Parti- cipate	Not partici- pate
	Advantage	Advantage	Advantage	Advantage	Advantage	Advantage
	for Par-	for Par-	for Par-	for Par-	for Par-	for Par-
	ticipation	ticipation	ticipation	ticipation	ticipation	ticipation
Sell at harvest						
Owner operator						
12.75	\$ 130	\$ 87	\$ 43	\$ 183	\$ 235	\$ 203
2.85	133	109	24	190	249	236
2.65	130	131	-1	192	255	269
2.05	135	153	-18	202	269	301
50-50 Tenant						
\$2.25	\$ 45	\$ 21	\$24	\$ 70	\$ 95	\$ 77
2.45	46	32	14	73	101	93
2.65	44	42	2	74	104	109
2.85	53	46	-7	78	111	125
50-50 Land Owner						
\$2.25	\$ 78	\$ 57	\$21	\$ 103	\$ 129	\$ 113
2.45	79	68	11	107	134	129
2.65	77	79	-2	107	137	145
2.85	80	89	-9	112	144	161
Sell from on farm storage						
Owner operator						
\$2.50	\$ 155	\$ 97	\$58	\$ 214	\$ 272	\$ 218
2.70	144	117	27	203	263	248
2.90	138	137	1	203	268	277
3.10	142	157	-15	211	280	308

1 Base acre is sum of .9 acre of corn plus .1 acre of set aside for participation and 1 acre of corn for non-participation.

Table 5.

Net Crop Returns over Variable Costs per Base Acre¹ for Participation versus Nonparticipation in 1984 ARP and PIK Programs for Wheat

Wheat Price and Crop System	Non Participation	Participation		
		Basic ARP	Basic ARP + 10% PIK	Basic ARP + 20% PIK
<u>Realized and Average Yield (54 bu.)</u>				
\$3.00				
Wheat only	\$ 90	\$100	\$ 95	\$ 90
With double crop soybeans	136	133	123	113
\$3.60				
Wheat only	122	111	107	102
With double crop soybeans	169	144	135	126
\$4.20				
Wheat only	154	111	109	107
With double crop soybeans	201	144	137	131
<u>Low Realized Yield (39 bu.) with 54 bu. Base Yield</u>				
\$3.00				
Wheat only	\$ 46	\$ 69	\$ 69	\$ 68
With double crop soybeans	93	102	97	91
\$3.60				
Wheat only	69	74	75	76
With double crop soybeans	116	107	103	100
\$4.20				
Wheat only	93	68	72	75
With double crop soybeans	140	101	100	100
<u>High Realized Yield (69 bu.) with 54 bu. Base Yield</u>				
\$3.00				
Wheat only	\$133	\$130	\$121	\$111
With double crop soybeans	180	163	149	135
\$3.60				
Wheat only	174	148	138	129
With double crop soybeans	221	181	166	152
\$4.20				
Wheat only	216	154	146	138
With double crop soybeans	263	187	174	161

¹ Base acre is 1 acre of wheat for non-participation, .7 acre of wheat plus .3 acre set aside for Basic ARP, .6 acre wheat plus .3 acre set aside plus .1 acre PIK diversion for ARP plus 10% PIK, and .5 acre wheat plus .3 acre set aside plus .2 acre for PIK diversion for ARP plus 20% PIK.





INCOME POSSIBILITIES WORKSHEET

PARTICIPATION VERSUS NONPARTICIPATION IN 1984 GOVERNMENT PROGRAM FOR CORN

PROGRAM INFORMATION

	<u>PARTICIPATE</u>		<u>NOT PARTICIPATE</u>	
	<u>Example</u>	<u>My Farm</u>	<u>Example</u>	<u>My Farm</u>
1. Corn acreage base	100 A.	_____		XX
2. Acres of corn planted	90 A.	_____	100 A.	_____
3. Acres set aside (line 2 x .111)	10 A.	_____		XX
4. Program yield	125 bu.	_____		
5. Program production (line 4 x line 2)	11,250 bu.	_____		XX
6. Expected yield	130 bu.	_____	125 bu.	_____
7. Expected production (line 2 x line 6)	11,700 bu.	_____	12,500 bu.	_____

EXPECTED GROSS INCOME

8. Expected grain return				
a. loan and harvest sales	11,700 bu.	_____	800 bu.	_____
	x \$2.55 =	_____	x \$2.45 =	_____
	\$29,835	_____	\$1,960	_____
b. stored sales and gain on loan	11,700 bu.	_____	11,700 bu.	_____
	x \$.25 =	_____	x \$.25 =	_____
	\$ 2,925	_____	\$32,760	_____
9. Deficiency payment (line 5 x (\$3.03 - 5 mo. price or max. \$.48) .33)	3,712	_____	XXXX	XX
10. Int. on harvest grain sales or loan (line 8a x 12% x 9/12)	2,685	_____	176	_____
11. TOTAL GROSS INCOME EQUIVALENT AT LOAN MATURITY (sum lines 8-10)	\$39,157	_____	\$34,896	_____

EXPECTED CASH EXPENSES

CROP

12. Fertilizer (\$58/A x line 2)	\$ 5,220	_____	\$ 5,800	_____
13. Seed, pest., etc. (\$45/A x line 2)	4,050	_____	4,500	_____
14. Mchy. fuel & reprs. (\$34/A x line 2)	3,060	_____	3,400	_____
15. Drying and storage (\$.22/bu. x line 7)	2,574	_____	2,750	_____

COVER CROP

16. Seed and crop (\$8/A x line 3)	80	_____	XXXX	XX
17. Mchy. fuel & reprs. (\$12/A x line 3)	120	_____	XXXX	XX

OTHER CASH EXPENSES AND WITHDRAWALS

18. Interest on crop expenses (sum lines 12-17 x 12% x 6/12)	906	_____	987	_____
19. Interest on redeemed loan (line 8a x 10% x 9/12)	2,238	_____		XX
20. _____	---	_____	---	_____
21. TOTAL CASH EXPENSES AND WITHDRAWALS (sum lines 12-20)	\$18,248	_____	\$17,437	_____

INCOME ABOVE EXPENSES AND WITHDRAWALS (line 11 minus line 21)

\$20,909	_____	\$17,459	_____
----------	-------	----------	-------

NET ADVANTAGE FOR PARTICIPATION

(Column 1 minus Column 2)	\$ 3,450	_____		_____
---------------------------	----------	-------	--	-------

	Non-Parti- cipation	Basic RAP Program	RAP + 10% PIK	RAP + 20% PIK
PROGRAM INFORMATION				
1. Program crop base	100	100	100	100
2. Actual planted acres	100	70	60	50
3. Acres in PIK (line 1 x % PIK)	xxxxx	xxxxx	10	20
4. Req. reduced acres (line 2 + 3 x .4286)	xxxxx	30	30	30
5. Program yield	xxxxx	54	54	54
6. Program production (line 2 x line 5)	xxxxx	3,780	3,240	2,700
7. Expected PIK bu. pymt. (line 3 x line 5 x 75%)	xxxxx	xxxxx	405	810
8. Expected yield	54	58	60	62
9. Expected production (line 2 x line 8)	5,400	4,060	3,600	3,100
INCOME				
10. Grain returns (line 9 x \$3.00/bu. or loan \$)	16,200	12,180	10,800	9,300
11. Deficiency payment (line 6 x \$1.00/bu.)	xxxxx	3,780	3,240	2,700
12. PIK income (line 7 x \$3.45/bu.)	xxxxx	xxxxx	1,397	2,795
13. Other income or reduced costs				
14. Total income (line 10, 11, 12 + 13)	16,200	15,960	15,437	14,795
VARIABLE COSTS				
15. Program crop				
a. Fert. & crop (line 2 x \$50 /A.)	5,000	3,500	3,000	2,500
b. Mch. fuel & rep. (line 2 x \$20 /A.)	2,000	1,400	1,200	1,000
c. Dry and store (line 8 x \$ - /bu.)	xxxxx	600	800	1,000
Cons. use (line 3 + 4 x \$20 /A.)				
16. Other				
17. Other	420	330	300	270
18. Total costs (lines 15 + 16 + 17 + 18)	7,420	5,830	5,300	4,770
NET RETURNS OVER VARIABLE COSTS -WHEAT ONLY				
20. Line 15 minus line 19	8,780	10,130	10,137	10,025
DOUBLE CROP INFORMATION				
21. Acres of SOYBEANS	100	70	60	50
22. Yield	20	20	20	20
23. Gross income (line 21 x 22 x \$6.50/bu.)	13,000	9,100	7,800	6,500
24. Variable costs				
a. Fert. & crop (line 21 x \$50/A.)	5,000	3,500	3,000	2,500
b. Mch. fuel & repr. (line 21 x \$15 /A.)	1,500	1,050	900	750
c. Dry & store (line 21 x 22 x \$ - bu.)				
Other 12% interest on variable costs for 6 mo.	390	273	234	195
25. Total cost (lines 24 + 25)	6,890	4,823	4,134	3,345
26. Total return over variable (line 23 minus line 26)	6,100	4,277	3,666	3,055
27. DC return over variable (line 23 minus line 26)	14,590	14,407	13,803	13,080
WHEAT & DOUBLE CROP NET RETURNS (line 20 + line 27)				

Cooperative Extension Service
United States Department of Agriculture
University of Illinois
At Urbana-Champaign
1301 W. Gregory Drive
Urbana, Illinois 61801

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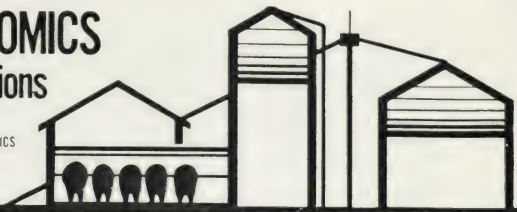




FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April, 1984

84-1/Financial Position of Illinois Farm Operators: Cost and Returns from Crop and Livestock Enterprises

LOW INCOMES TRANSLATE INTO NET WORTH DECLINE FOR MANY ILLINOIS FARM OPERATORS

Net farm income information from Illinois Farm Business Farm Management data can serve as the basis from which to calculate an estimate of net worth change. On a cost basis (without considering inflation or deflation of capital asset values), the change is calculated by adding together the net farm and net nonfarm income in Table 1 and then subtracting withdrawals for family living and income and social security taxes paid. Using this procedure, the average Illinois farm operator's net worth in assets other than land declined by an estimated \$13,086 in 1981, increased by \$1,240 in 1982, but declined by \$4,373 in 1983. Estimates indicate that the net worth of 871 farm operators in 37 southern Illinois counties declined by \$21,754 in 1983. Total net worth decline on a market basis balance sheet would be much greater if it included the change in land values during this period. This report is based on a summary of 4,430 Illinois Farm Business Records, which are kept in cooperation with the Illinois Farm Business Farm Management Association and the University of Illinois Cooperative Extension Service.

Net farm income is the value of the operator's share of farm production less total operating expenses, including the amount of interest paid and depreciation plus gain or loss on machinery or buildings sold. When added to net nonfarm income, this is the income available to pay for family living, income and social security taxes, intermediate and long-term debt principal, and savings. Estimates used in Table 1 for net nonfarm income and withdrawals for living expenses and taxes paid were based on a sample of 164 central Illinois farm families. They balanced all sources of farm and nonfarm funds with the uses of funds to identify precise expenditures for these withdrawals. These expenditures were then adjusted downward by 10 percent to reflect belt tightening that has already occurred as an adjustment to lower incomes.

Capital Debt Repayment Capacity

The average funds available for capital debt repayment per farm family for all 4,430 farm operators were estimated at \$7,524 in 1981, \$24,632 in 1982, and \$19,953 in 1983. Capital debt repayment averaged only \$3,461 for the 871 farm recordkeeping families in 37 southern Illinois counties in 1983 (Table 1). These were the funds estimated to be available for capital purchases or principal payments on intermediate and long-term debt. Table 1 shows actual dollar commitments per farm that were made for capital purchases. Note that in 1983 these commitments would have depleted all the funds available for capital debt repayment. However, the average farm with intermediate and long-term debt payments would probably borrow funds to finance the new capital purchases.

Interest Paid and Capital Debt Outstanding

Based on studies of cash expenditures on full tenant-operated farms, annual operator interest payments for operating funds were estimated to be about \$6,000 per farm in 1983. Total interest paid by these 4,430 farm operators averaged \$16,830 in 1981, \$20,392 in 1982, and \$19,127 in 1983 (Table 1). If \$6,000 of the 1983 interest is estimated for operating debt, the remaining \$13,127 of interest paid indicates that outstanding intermediate and long-term debt probably averages about \$130,000 per farm operator, depending on the average interest rate assumed. These factors indicate that farm operators with above-average debt loads and/or below-average management have the greatest need to determine how much net worth decline they can absorb before having a serious financial problem. This is especially important if they have capital assets that may be declining in value.

Farm operators with low 1983 net incomes can better assess the financial risks of their business by the study of complete and accurate financial statements.

Cost and Returns from Crops

Corn and soybeans are important crops contributing to the net farm incomes and the current financial status of farm operators. See Figures 1 and 2 for the cost and return per bushel of both corn and soybeans produced each year from 1975 to 1983 on 501 central Illinois grain farms with high quality soils and no livestock. In Figure 1, note that the total cost to grow a bushel of corn (line A) has exceeded the average annual Illinois corn price (line B) each year since 1977, with the exception of 1981. The difference between the total of all cost (line A) and total, nonland cost (line C) is the charge for the use of the land. The deficits indicate that any return for risk had to come from equities in capital, primarily land, or other unpaid inputs such as operator labor or debt-free facilities. These low returns continue to hold down land values and force lower cash rents.

Variable costs (line D) include cash expenditures for fertilizer, pesticides, seed, and drying costs, which are normally shared according to the terms of the lease on rented farms, plus machinery repairs, fuel and hire. Other nonland costs include labor, depreciation, interest, buildings and overhead. Total costs per acre actually declined 3 percent in 1983 from 1982, but the low corn yield of only 96 bushels on these farms resulted in a much higher cost per bushel. With a normal yield of 130 bushels per acre on these farms, costs per bushel are now averaging about \$1 for the variable cost (line D), \$2 for total nonland cost (line C), and \$3 for all cost (line A).

Figure 2 shows the cost and return per bushel of soybeans produced on these same farms from 1975 to 1983. Total costs (line A) have exceeded returns, as shown by the average annual price (line B) each year since 1980, reflecting large soybeans supplies and weak demand. With a normal yield of 44 bushels, costs per bushel are now averaging about \$1.75 for the variable costs (line D), \$4.30 for the total nonland costs (line C), and \$7.10 for the total costs (line A).

Costs and Returns from Livestock

Livestock also have been important to the current financial status of farm operators. The cost and returns per hundred pounds of pork produced annually from 1975 to 1983 on a sample of 86 farrow-to-finish enterprises with an average of 160 litters per year are shown in Figure 3. Except for 1982, costs have exceeded returns each year since 1978. If the average producers used large amounts of borrowed capital and hired labor in the period from 1979 to 1981, they would have had little or no cash left from this enterprise after paying the costs represented by line C. Unless it was possible to use savings, borrow from the equities in the crop enterprise, or borrow from a lender during this three-year period, the producer would have been forced out of business.

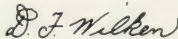
The average returns above feed cost and the cost of purchased animals from about 2,000 individual annual livestock enterprise records from 1979 to 1983 are shown in Table 2. This is the return available to pay for labor, machinery, equipment and building repairs, depreciation, livestock expense, taxes, overhead, and an interest charge on all capital used. There is no profit until these costs are covered. The returns for the past five years for all enterprises are less than the total cost of production.

Based on the estimates of nonfeed costs in Table 2, the 1979-83 average return above feed to cover these nonfeed costs for hogs (farrow-to-finish) was \$18.45 cost minus \$15.03 returns, or a negative \$3.42 per hundred pounds. For feeder-pig finishing enterprises, returns above feed averaged \$3.39 less than nonfeed costs. Feeder cattle show returns per 100 pounds produced that are \$8.53 short of covering costs; dairy returns are \$20 short per cow; and beef cow herds are \$112 short per cow.

The high interest charges, along with the weak demand for livestock products, are important factors that contribute to the negative profit margins on all enterprises. Livestock producers who use their own capital without borrowed funds, and those producers who have above-average efficiency, are in the best position to cope with these low prices and high costs.

Summary

This report reviews the financial status of Illinois farm operators over the past 3-year period, based on the summaries of Illinois Farm Business Records. While average net farm income appears to have hit bottom in 1981, improvements in 1983 were small. Adjustments will continue to take place on farms and in the overall economy until cost-price relationships yield adequate returns for the resources used. But until that time, it is important for each farm operator to (1) prepare accurate financial and monthly cash flow statements and (2) to assess the financial strength of his business at regular intervals.



D.F. Wilken, Extension Specialist, Farm Management

Table 1. Estimated Change in Net Worth and Capital Debt Repayment Capacity for 4,430 Illinois Farm Operators

	All Illinois counties			37 southern counties, 1983
	1981	1982	1983	
Net farm income	\$ 10,875	\$19,540	\$16,627	\$ -2,754
+ Net nonfarm income ¹	4,766	8,202	6,000	6,000
- Family living ²	23,320	22,180	22,000	21,000
- Income and social security tax ²	5,407	4,322	5,000	4,000
Change in net worth	\$-13,086	\$ 1,240	\$-4,373	\$-21,754
+ Depreciation	20,610	23,392	24,326	25,215
Funds available for capital debt repayment	\$ 7,524	\$24,632	\$19,953	\$ 3,461
Capital purchases	\$ 21,000	\$22,835	\$19,325	\$ 19,929
Cash interest paid	16,830	20,392	19,127	17,904

¹Actual amounts identified in central Illinois sample of 164 farms for 1981 and 1982; 1983 amounts are estimated.

²Actual amounts identified in central Illinois sample of 164 farms for 1981 and 1982 reduced by 10 percent; 1983 amounts are estimated.

Table 2. Returns to Livestock Enterprise Units, 1979 to 1983

Year	Farrow to-finish hogs (per cwt)	Feeder-pig finishing (per cwt)	Feeder cattle (per cwt)	Dairy cattle (cow)	Beef herd (cow) ¹
Returns above feed cost of feed and purchased animals					
1979	\$ 9.50	\$ 1.57	\$20.27	\$1,068	\$240
1980	11.12	5.96	4.77	1,072	137
1981	11.45	4.29	3.41	1,035	1
1982	30.43	16.40	19.65	1,043	47
1983	12.68	5.26	16.04	885	51
5-yr. ave.	\$15.03	\$ 6.70	\$12.83	\$1,021	\$ 95
Nonfeed costs, 1979-1983					
Direct cash ²	\$ 5.75	\$ 3.67	\$ 9.46	\$ 193	\$ 29
Other cost ³	12.70	6.42	11.90	848	178
Total	\$18.45	\$10.09	\$21.36	\$1,041	\$207

¹The feed cost for beef herds includes up to \$60 of hay equivalent from salvage roughage.

²Includes veterinary costs, utilities, fuel, equipment repair costs, and other direct cash expenses, including interest on feeder livestock, from Table 6, Farm Management Manuals, 1979-1983.

³Estimates of annual nonfeed costs are based on enterprise cost studies of operative units 1979-1982.

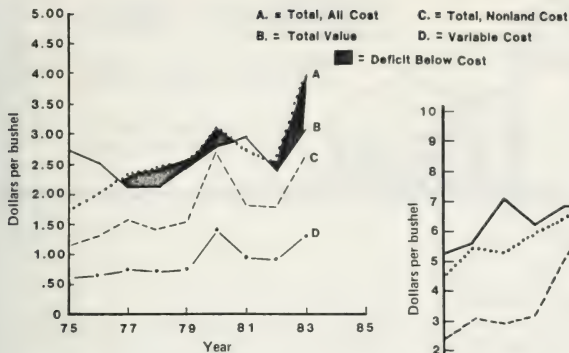


Figure 1. Cost and returns per bushel of corn produced on central Illinois grain farms, 1975-1983. Soil productivity rating, 86-100.

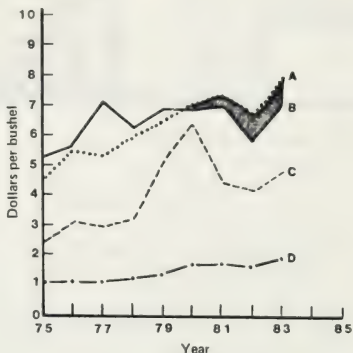


Figure 2. Cost and returns per bushel of soybeans produced on central Illinois grain farms, 1975-1983. Soil productivity rating, 86-100.

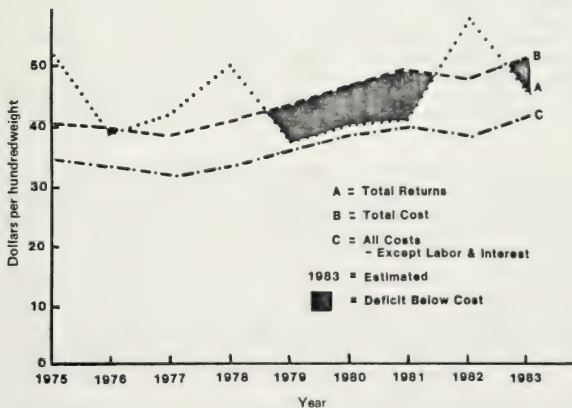


Figure 3. Cost and returns per hundred pounds of pork produced on farms with under 250 litters, 1975-1983.



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April, 1984

Valuing Farm Input Handbook
Section 5, No. 2

84-2/Cost of Growing Corn and Soybeans, 1983

In 1983, the total cost per acre for growing corn in Illinois averaged \$403 in the northern section, \$372 in the central section, and \$337 in the southern section. The soybean costs per acre were \$320, \$296, and \$265, respectively. The total crop costs per acre were lower in southern Illinois because this region has the lowest land costs in the state (see the accompanying table). The total costs per bushel were \$3.99 to \$5.81 for corn and \$7.80 to \$11.52 for soybeans. Except for northern Illinois and for soybeans in southern Illinois, the variable costs per acre decreased by 4 to 8 percent from 1982. Variations in total costs were related to weather factors, yields, and to the quality of the land.

The above figures were obtained from Illinois Farm Business Records that are kept by farmers enrolled in Illinois Farm Business Farm Management Associations. The samples included only farms of more than 260 acres on the more productive and nearly level soils in each area of the state; these farms are without livestock. Farms located in 22 counties on or north of the Illinois River are included in the sample for northern Illinois. Farms from 36 counties below a line from about Mattoon to Alton are in the sample for southern Illinois. The remaining 44 counties make up the sample for central Illinois. The sample farms averaged 590 tillable acres in northern Illinois, 609 acres in the central section, and 760 acres in southern Illinois.

This summary includes some factors that farmers consider as costs of doing business, but which some other sole-proprietor businesses may not. These factors are not used as expense items on income tax returns. Examples would include the labor charge for work done by the farm operator himself, a rental charge for use of all the land (both owned and rented), and an interest charge on equity in the inventories.

NONLAND COSTS

For soybeans, the soil-fertility costs were allocated on the basis of phosphorus, potassium, and lime removals, with the residual cost allocated to corn. The seed, crop, chemical, and drying expenses also included some commercial drying and storage and the estimated value of home-raised seed.

The machinery repair, fuel, and hire costs were reduced for fuel-tax rebates and custom work. The labor costs included the cash value of hired labor, plus a charge for available unpaid labor at a rate of \$1,100 per month. No added charge was made for management. The building and storage costs used were for repairs and depreciation only. The nonland interest charge in 1983 was 12 percent on the average of half the inventory value of crops at the beginning and at the end of the year plus

the full undepreciated value of machinery and buildings, plus half the total operating expenses. Overhead costs included insurance, utilities, the farm share of automobile expenses, and miscellaneous items.

LAND COSTS

These included the adjusted net rent, plus the real estate taxes paid. Net rent was represented as the average received by crop-share landlords as reported on record-keeping farms for the 5-year period of 1978-1982. Caution is needed in interpreting differences in land costs between areas. In the long run, the changes in the net rent residual return to landowners should tend to equalize the total costs of production between areas.

COST PER BUSHEL

The very low yields due to the drought in the southern two-thirds of Illinois in 1983 resulted in the high cost per bushel. Prices received below these costs indicate that the average landowner and farm operator will have to make up the difference by taking lower returns for their land and their labor. Some will be using the allowance for depreciation and the interest charge on equity (debt free) capital for living until the yield and the prices are restored to profitable levels. Some operators with low net worths may find it important to consider something like the federal crop insurance program as protection against another bad year.

D. F. Wilken
D.F. Wilken, Extension Specialist, Farm Management

	Corn			Soybeans		
	North	Central	South	North	Central	South
Number of farms.	302	792	242	302	792	242
Acres in crop.	327	275	229	187	230	291
NON-LAND COSTS						
Variable costs:						
Soil fertility	\$ 59	\$ 52	\$ 56	\$ 18	\$ 16	\$ 18
Pesticides	24	20	22	18	18	20
Seed	19	19	19	15	13	12
Drying & storage	8	9	3	3	3	2
Repairs, fuel, & hire.	32	28	33	25	23	27
Total, variable costs.	\$142	\$128	\$133	\$ 79	\$ 73	\$ 79
Percent increase from 1982	1	-8	-4	4	-4	3
Other non-land costs:						
Labor.	\$ 30	\$ 31	\$ 32	\$ 29	\$ 29	\$ 30
Buildings and storage.	16	9	12	10	5	6
Machinery depreciation.	40	36	43	32	29	35
Non-land interest.	50	42	39	45	35	37
Overhead	12	12	10	12	11	10
Total, other costs	\$148	\$130	\$136	\$128	\$109	\$118
Total, non-land costs.	\$290	\$258	\$269	\$207	\$182	\$197
Percent increase from 1982	-1	-5	2	-2	-4	5
LAND COSTS						
Taxes.	\$ 20	\$ 21	\$ 10	\$ 20	\$ 21	\$ 10
Annually adjusted net rent	93	93	58	93	93	58
Total land cost.	\$113	\$114	\$ 68	\$113	\$114	\$ 68
TOTAL, ALL COSTS	\$403	\$372	\$337	\$320	\$296	\$255
1983 yields, bushels per acre.						
Non-land cost per bushel	101	89	58	41	37	23
Total, all costs per bushel.	\$2.87	\$2.90	\$4.64	\$5.05	\$4.92	\$8.57
Total, all costs per bushel.	\$3.99	\$4.18	\$5.81	\$7.80	\$8.00	\$11.52
1980-83 average yield.						
Non-land cost per bushel	125	120	97	42	41	33
Total, all costs per bushel.	\$2.32	\$2.15	\$2.77	\$4.93	\$4.44	\$5.97
Total, all costs per bushel.	\$3.22	\$3.10	\$3.47	\$7.62	\$7.22	\$8.03

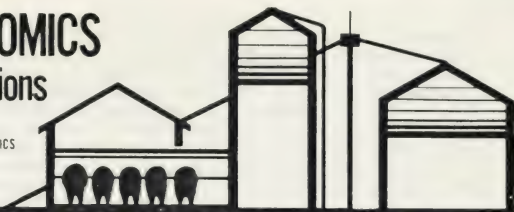
NOTE: Below "dash" line the entries show an average



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



May, 1984

84-3/Credit Conditions Impact Machinery and Land Value

There's good news and there's bad news! And whether the news is good or bad often depends on which side of the fence you're sitting.

A few years ago some people thought that the age-old laws of economics had been repealed along with the law of gravity. The value of fixed assets such as land, buildings, machinery, and debt seemed to be on a never-ending upward spiral having little relationship to income, which, in current dollar terms has been about the same since 1974. The boom in agricultural asset values ended after six years, in late 1980, when carrying costs on debt outran the cash flows available. Interest rates declined, but they were too late to stem the decline in asset values. Incomes actually declined in real terms. The real net rent for high-quality land declined by 40 percent from the 1974 high.

The only thing that hasn't come down is the debt, and therein lies the really bad news. Much of the debt was incurred during the late 1970s when everything looked rosy. A recent report from the Federal Reserve Board of Governors in Washington, D.C., shows that about 20 percent of all farmers have debt-asset ratios of 0.4 or higher. With rates of return on assets still only a fraction of the rate of interest, many farmers whose debt-to-asset ratios are 40 percent or more cannot meet the interest payments. This is bad enough, but from the standpoint of lenders, the story is even more sanguine: about 65 percent of the debt is owed by these borrowers with debt-asset ratios of 40 percent or more who are finding it nearly impossible to carry the debt. This suggests greater liquidation of fixed assets than we have seen for a long time. Some larger farmers in this position are already trying to pare down to a bare-bones operation by selling off excess machinery and acreage to reduce their debts to manageable proportions. Others will have to liquidate. The Farmer's Home Administration is having delinquency problems across the nation. This means there is a poor financial base to support fixed asset values even at their current lower levels.

Machinery Value Outlook

Pressure will be great on manufacturers to hold down prices because of weak demand. Manufacturers are caught in a real bind. As the general economy picks up, unions will pressure to raise wages, while manufacturers know that if they raise farm machinery prices, it could stifle sales further. American manufacturers are likely to get more foreign competition, especially in the smaller-sized end of the market which has almost been abandoned by our American farm machinery manufacturers.

The aggregate machinery inventory is declining in value. Annual unit sales of tractors and combines have declined each year since 1979, and in 1983 sales were

only half the 1979 level. So the average age of machines on farms is increasing. At one time, the "Jones effect" (buying a new tractor because your neighbor did, whether you needed one or not) was a strong demand generator. That's no longer in vogue! A farmer told me last week that he had never seen a tractor or combine that wouldn't last one more year. Some good machinery will be coming on the market from farmers under financial stress. It may be a good buy now. The longer farmers put off buying new machinery, the higher used machinery prices will be. Along with farmers, machinery dealers are having tough financial problems. Many have had to close their doors--particularly those who built new facilities in the late 1970s, had high inventories, and were highly leveraged.

Land Value Outlook

The primary economic factors that affect capital values such as land are the level and direction of change of net rents or returns to the asset and the rate of return that investors require or desire from the asset. The net rent is the residual return to land after production costs including labor and management have been paid. This depends on commodity prices, yields, technology, costs management, competitiveness, and alternative opportunities for producers. The net rent in current dollars has fluctuated widely around a trend line that has been virtually flat since 1974. Real net rent (adjusted by the consumer price index) has been falling. It increased for some farmers in 1983 and will rise somewhat for most farmers in 1984 (depending on weather). The increase in income will help support land prices, but the effect may be small if more land comes on the market. The longer-term outlook for agricultural income, for instance, the next 3 to 5 years, is not optimistic because government wants to phase out subsidy programs in agriculture and because foreign demand continues to be weak with little prospect for improvement. Many countries already owe us more than they can pay.

On the average, only a small fraction (about 5 percent) of total land comes on the market each year. Thus it doesn't take much land to significantly change the normal market supply level. This could become a problem over the next few years. Early analysis of sale records from the Illinois Department of Revenue suggests that the number of land sales was approximately 50 percent lower in 1981 and 1982 compared to 1979 and 1980. Assuming that people die and create estates to be settled at about the same rate as always and that the number of financially distressed parcels is higher than in 1979 or 1980, we now have over two years' of normal land supply in the pipeline exerting downward pressure on land prices.

What is the desired rate of return on farmland by owners and investors? We can draw certain conclusions about this question by observing the land sale and rental market alternative investments, and their rates of return. The rate of return to land has increased over the last three years mainly because land values have fallen faster than rents. Current return from land has increased from about 2 percent in 1980 on good land to current levels of 3 or 4 percent. But this is still substantially below the cost of borrowing money and below the yield of government treasury bonds, or for that matter, other commercial real estate. Land is still better than gold, which has also declined in value and produces no current return.

Although mortgage rates dropped from their record highs of two years ago, interest rates seem to be creeping up again with the strong expansion in the general economy. Rates have increased a little over 1 percent since the first of the year and are likely to be another 1/2 to 1 percent higher by the end of the year. This is negative for land values and farm operating costs. Without any change in income, a 1-percent increase in mortgage rates would theoretically signal an 8-percent decline in land value.

A 1984 research study by the Federal Reserve Board of Governors includes the following statements about land values: "The decline in farmland prices was halted when near-term income prospects improved with the announcement of the "PLK" program....(however) there is now considerable pressure to restrain growth in government spending. Thus, more of the post-boom adjustment remains to be worked out in the commodity and land markets."

Federal Reserve Bank of Chicago Land Price Survey Results

Year	Quarter	Iowa	Illinois	Indiana
<i>...Percentage of change from previous quarter...</i>				
1981	2	+4	-1	.0
	3	+2	-1	-1
	4	-4 (+3)	-4 (-4)	-4 (-5)
1982	1	-4	-4	-7
	2	-4	-4	-7
	3	-5	-7	-5
	4	+4'(-17)	-4 (-19)	-3 (-22)
1983	1	+1	+4	+2
	2	+1	+3	+1
	3	0	+1	+2
	4	-3 (-1)	+1 (+6)	0 (+4)
1984	1	-6	-3	0

The foregoing table begins in the second quarter of 1981. That was the first quarter that showed the end of the boom in land prices. The numbers in parentheses are compounded changes for the year as a whole. The Chicago district includes all of Iowa but only the northern 2/3 of Illinois and Indiana. The southern parts of all three states were hard hit by drought, so the figures for 1983 are probably higher in Illinois and Indiana than they would be if the whole of each state was considered. The USDA land value index for the period 1983 to 1984 will not be available until June, 1984.

The current land market is uncertain and varies widely from place to place and among parcels in the same locale. Some prices in northern and western Illinois have been reported at \$3,000 to \$3,400 per acre, while other parcels of similar quality have been in the range of \$2,100 to \$2,300. A few sales in central Illinois have reached \$3,000. Location as well as other aspects such as fertility, waterways, drainage, ditches, shape of parcel, and access to the parcel have all become much more critical elements in the minds of buyers. More critical and cautious buyers are evidence of a softer market. Similar wide but lower price ranges are being reported from southern Illinois, where the 1983 drought put most farmers under serious financial stress. (For example, the average yield of all corn on our test plots at Carbondale was 24 bushels per acre in 1983.) The top end of the land price range is higher than it was in 1982 and 1983. The bottom end of the range is as low if not lower than at the end of 1982, which seemed to be at least a temporary bottom in the market. The average price seems to be a little lower than a year ago.

After receiving all the factors discussed in this report and our best outlook information on income, rates of returns, and alternative investment opportunities, we remain on the pessimistic side for land values. We think the 1983 upturn in the market is

temporary and some further decline is likely before a sustainable uptrend can be realized. If there is no increase in net rent over the next 3 to 5 years and no significant decline in mortgage interest rates, further decline in land values will be needed to bring rates of return on land into the traditional relationship with various alternative capital returns. For example, during the two decades of 1950 to 1970, the current rate of return on farmland was from one-half to two-thirds the mortgage rate. If we should enter another period of inflation, the current value of land would likely rise, although not as fast as the cost of living index.

On the good news side, the whole picture should be kept in perspective: 80 percent of all farm operators are in good financial condition; 1984 will be a good year; and in Illinois many farmers and their wives have good off-farm jobs supplementing their incomes. Farmers are the largest buyers of farmland, and at some point, those in good-to-excellent financial condition will step into the market. Therefore, those who are watching for the whole bottom to drop out of the land market may have a long wait!

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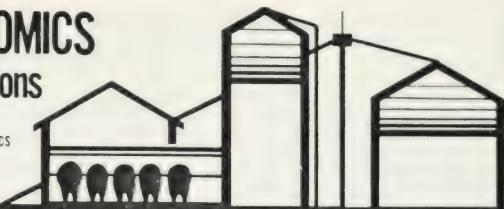




FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
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May, 1984

84-4/The Effect of Changing Consumer Demand for Meat on Illinois Livestock Producers

Income from livestock production is important to Illinois agriculture. In 1982, hog and cattle sales from Illinois farms made up 26.1 percent of all cash sales, with dairy products and eggs adding an additional 5.6 percent to the total. Livestock prices have a major impact on producer net incomes. Prices of feed consisting largely of corn and protein of farm origin are also important in determining livestock profits. The marketplace for Illinois corn and soybeans is worldwide and includes domestic feed usage and foreign exports. The marketplace for meat and livestock products is largely domestic consumption, and meat imports and exports have less influence. Thus, the linkage between consumer demand levels for meats and profit levels from livestock enterprises is largely determined within the domestic or consumer market. •

T.A. Hieronymus, writing in the *Illinois Weekly Outlook Letter* (March 19, 1984) succinctly describes the linkage between consumer demand for meats and the resulting profits to livestock producers as follows:

Consumer demand for livestock products, meat in particular, is a major price-making force for Midwest agricultural commodities, both grain and livestock. Feedgrains and soybeans are primarily used for livestock feed. Livestock producers can pay no more for grain than the amount that they can get from livestock sales. There is a long-run equilibrium relationship between grain and livestock prices and the lines of causation that run from livestock to grain. Livestock prices, of course, depend upon the prices of the various meat products on the market.

Meat prices are demand determined. The production processes are put into motion and at a substantially late time, the length depending on the kind of meat, the products appear in the supermarkets. The quantities that finally reach the market are determined by production plans that were made much earlier. Retail prices are posted at levels that will just clear the market. The whole of the supply is put on the auction block and sold for what it will fetch. Consumers protest that they have no choice but to pay the prices that are asked. They do have a choice: they can walk on by. And they exercise the choice. How much money consumers spend for meat is up to them and depends on their priorities in the allocation of their money among the various demands for it.

A brief review of meat, fish, and cheese consumption levels is reported in Table 1. Total meat consumption (and production) per capita increased from 168 pounds in 1960 to 200 pounds by 1970. During the 1970s, consumption ranged from a low of

190.6 pounds in 1973 to a high of just over 205 pounds in 1971, 1977, and 1979. Starting with 1980, meat production in three of the most recent four years was very close to or above 208 pounds per capita.

The mix of the meat diet has varied over time. Beef and veal consumption was just under 70 pounds in 1960, reached a high of 97.7 pounds in 1976, and appears to have stabilized recently in the 78- to 80-pound range. Pork consumption has been more cyclical. The low was 50.7 pounds in 1975, following the short corn crop in 1974. The highs were 68.3 pounds in 1971 and 1980. Poultry consumption has shown the most consistent upward trend, from 34 pounds in 1960 to over 64 pounds in 1983. Turkey meats have increased from 6 to 11 pounds between 1960 and 1983 and broilers and chicken have made up the balance of the increase.

Two related meat substitutes, fish and cheese (Table 1), have also increased, with cheese consumption showing the greatest increase. A surprising trend, not shown in the table, is the increase in foods derived from corn, up from 47 pounds grain equivalent per capita in 1960 to 126 pounds in 1982. Most of the increase has been in the form of corn sweeteners; there has been no significant change in human consumption of the cereal forms of corn, wheat and oats.

For meats, consumption is equated to supply. The other side of price-making forces is consumer demand, which is characterized by an inverse relationship of price to quantity. Meat prices at retail are set at levels that will clear the markets. And demand levels can and have changed over time as the tastes, preferences, and disposable income of consumers have changed. Hieronymus (March 19, 1984) describes the changing demand levels for meat as follows:

During the 1950s and 1960s, consumers took increasing quantities at basically constant real prices. They increased their expenditures for livestock products about 60 percent as rapidly as their real incomes increased. There was a surge in consumer demand from 1969 through 1973. Consumers took increasing quantities at increasing real prices so that expenditures rose rapidly. This enthusiasm for meat persisted through 1979. Real term expenditures for meat in 1979 were 15 percent higher than they were in 1969, and the quantity taken in 1979 was 8 percent greater than in 1969. This happy circumstance has since reversed. In 1983, market supplies of meat were up 2.6 percent from 1979, real term prices were down 16 percent, and real term expenditures were down 14 percent. We do not know enough about consumer demand to explain the surge in the 1970s or the decrease since 1979.

Speculative reasons abound for the recent fall off in meat demand. The recent recession, health issues, "weight watchers," increasing prices, and expenditures for energy and health services are only a few. Regardless of the exact causes for the stagnant demand for meat, the implications for livestock producers cannot be ignored. When quantities of meat offered to consumers have exceeded 205 pounds per capita, the resulting lower livestock profits at the farm level have resulted in returns below long run break-even levels (Table 2). The only exceptions since 1979 were above break-even returns for hogs and feeder pigs in 1982 when total meat supplies dropped to 203.2 pounds per capita and pork consumption decreased nearly 10 percent from the preceding year.

What possible actions are open to livestock producers? One obvious answer is to cut meat output to under 200 pounds per capita and hope that farm prices will

Table 1. Per Capita Consumption of Meats, Fishery Products, and Cheeses, 1960-1983

Item	1960	1965	1970	1975	1980	1981	1982	1983
	(pounds, retail weight)							
Beef, veal	69.4	74.9	86.4	91.3	78.0	78.8	78.8	80.3
Pork	60.3	54.7	62.3	50.7	68.3	65.0	59.0	62.6
Lamb	4.3	3.3	2.9	1.8	1.4	1.4	1.5	1.5
All poultry	<u>34.0</u>	<u>40.7</u>	<u>48.4</u>	<u>48.6</u>	<u>60.5</u>	<u>62.4</u>	<u>63.9</u>	<u>64.7</u>
Total meats	168.0	176.6	200.0	192.4	208.2	207.6	203.2	209.1
Fishery products	10.3	10.8	11.8	12.2	12.7	12.9	12.3	n.a.
Cheeses	8.4	9.5	11.5	14.4	17.6	18.4	20.1	n.a.

SOURCES: Livestock and Meat Statistics; Food Consumption Prices and Expenditures, USDA, ERS.

Table 2. Livestock Returns above Feed Costs per Unit of Production, 1979-1983

Year	Hogs	Feeder pigs	Feeder cattle	Beef cows
	(per 100 lb produced)			per cow
1979	\$ 9.50	\$ 1.57	\$20.27	\$240
1980	11.11	5.96	4.77	137
1981	11.45	4.29	3.41	1
1982	30.43	16.40	19.65	47
1983	<u>12.68</u>	<u>5.26</u>	<u>16.04</u>	<u>51</u>
5 yr. ave.	\$15.03	\$ 6.70	\$12.83	\$ 95
5 yr. break-even	\$18.45	\$10.09	\$21.36	\$207

SOURCE: Illinois FBFM Summaries.

rise to levels that are profitable for producers. Another is to increase production efficiency, reducing costs per unit of output so that profits remain to the livestock producer at the current market-clearing meat prices. A third is to increase funds spent for meat promotion programs, with the hope that part of the apparent fall off in consumer demand for meat will be recovered.

The resulting consequences of the above alternatives may not always be acceptable or desirable to livestock producers. Who will cut back or cease production? Increases in production efficiency have been, are, and will continue to be an important objective of livestock producers in a competitive economic environment, and quantum increases in production efficiency historically do not occur overnight. Promotional efforts may only result in changing the share of the market among the three major meat sources, as consumers exercise their choices and preferences in allocating their disposable incomes among the many demands for it.

One adjustment in the long run is predictable. The aggregate capacity of livestock producers to produce meats will eventually adjust to a total quantity where the demand for meat results in at least break-even prices for livestock producers.

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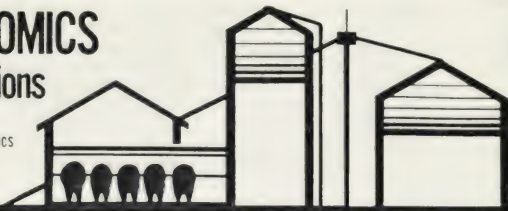
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



May, 1984

84-5/Farm and Family Sources and Uses of Dollars, 1980-1983, Illinois Farms

Total noncapital expenses for family living of farm operators within a group of 257 recordkeeping farms in central Illinois averaged \$25,535 or \$1,946 per month per family in 1983. (See the accompanying table.) This average was 4.6 percent higher than in 1982 and 10.5 percent above the average for 1980. Another \$3,160 was used to purchase capital items, such as the personal share of the family automobile, furniture, household equipment, and the like. Thus, the grand total for living expenditures averaged \$26,495 for 1983 compared with \$24,644 for 1982 for a \$1,851 increase per family. Nearly half of this increase was in the capital items purchased.

How farm operator families use their funds may depend on the level of the net farm income and the priority of the expenditures. Net farm incomes increased slightly in the sample area in 1983 over those in 1982. Most of the farms were classified as grain farms, so the lower hog farm earnings did not prevent the average earnings from increasing.

While interest paid remained about the same, the amount of money borrowed decreased to its lowest level since 1979 on these farms. Farm receipts per tillable acre remained the same, but cash operating expenses dropped \$9 per tillable acre. Efforts to meet the continued high interest payments and maintain living expenditures are indicated in the reduced borrowings, the far fewer farm capital purchases, and the reductions in funds in savings. These facts are reflected in the accompanying table.

In 1983, the operators of the 257 farms in the study averaged 41 years of age. They averaged 3.6 members per family with the age of the oldest dependent child being 12 years. They farmed 601 tillable acres, of which 128 acres (21 percent) were owner-operated. They were cooperators in the Farm Business Farm Management (FBFM) Association, located primarily in central and south-central Illinois. They kept records so that all sources of funds, both farm and nonfarm, balanced with all uses of funds in a complete monthly cash-flow accounting system. These farms contained 62 more tillable acres than the average of all of the 4,000 recordkeeping farms studied in the state. Management was also considered to be slightly above average on the 257 farms. It is estimated that these factors can produce 10 to 15 percent more earnings to be available for living than the average of all the recordkeeping families.

The table shows a comparison of the averages for the total family-living expenses for five categories per farm for each year from 1980 to 1983. "Living expendables"

included food, operating expenses, clothing, personal items, recreation, entertainment, education, and transportation. The value of farm-furnished meat, amounting to an estimated \$200 average per farm, and the use value of the rented house on an estimated 40 to 50 percent of the farms in this sample are not included, since these data cover only cash outlays. The excess of nonfarm taxable income over nonfarm business expenses of \$6,873 (\$10,937 - \$4,064) in 1983 was 26 percent of the total for all living expenses. This income includes dividends on stock, interest on savings and money market funds, income from other nonfarm investments, and income from off-farm work performed by family members.

Farm and Family Sources and Uses of Dollars, Average per Family, 1980 to 1983, and Average Living Expenditures, 1983, High-Third and Low-Third Families, 257 Recordkeeping Farms, FBFM, Central Illinois

	All records, average per farm				Family of 3 to 5, 1983	
	1983	1982	1981	1980	High-third	Low-third
NUMBER IN SAMPLE	257	195	132	178	61	61
TILLABLE ACRES FARMED	601	606	590	602	681	486
ACRES OWNED	128	122	106	120	189	69
LIABILITIES, JANUARY 1	\$227,749	\$210,515	\$170,376	\$154,467	\$334,771	\$165,738
LIABILITIES, DECEMBER 31	223,757	227,064	188,411	176,889	336,628	174,289
SOURCES OF DOLLARS						
Nonfarm taxable income	\$ 10,937	\$ 11,552	\$ 8,747	\$ 6,620	\$ 14,263	\$ 8,483
Money borrowed	81,460	120,741	110,019	101,424	106,892	84,244
Farm receipts	148,671	149,695	136,447	140,892	183,637	114,779
USE OF DOLLARS						
Interest paid	\$ 22,812	\$ 22,644	\$ 16,619	\$ 14,359	\$ 36,208	\$ 16,018
Cash operating expenses	84,680	90,769	80,284	83,684	102,511	68,962
Capital farm purchases	15,358	21,988	22,232	18,155	19,705	14,998
Payments on principal	85,006	104,792	91,983	79,002	104,978	75,428
Income and Social Security taxes	4,255	4,802	6,008	6,130	3,183	2,469
Net new savings and investment	-1,582	9,599	8,194	21,171	-2,837	7,656
Nonfarm business expenses	4,064	3,350	3,981	3,003	3,528	3,851
LIVING EXPENSES						
Contributions	\$ 1,154	\$ 1,095	\$ 1,136	\$ 1,142	\$ 2,034	\$ 545
Medical	2,774	2,656	2,221	2,219	3,492	1,892
Insurance, life and disability	2,104	2,021	1,863	1,651	3,496	934
Expendables	17,303	16,528	16,782	16,193	24,332	12,667
Total noncapital exp.	\$ 23,335	\$ 22,300	\$ 21,948	\$ 21,205	\$ 33,354	\$ 16,038
Capital	\$ 3,160	\$ 2,344	\$ 3,964	\$ 2,227	\$ 4,162	\$ 2,086
Total, living expenses	\$ 26,495	\$ 24,644	\$ 25,912	\$ 23,432	\$ 37,516	\$ 18,124
TOTAL, NONCAPITAL LIVING EXPENSES, PERCENT CHANGE	4.6	1.6	3.5	4.3	...	...

In this group of 257 farms, the most significant observation about 1983 is the \$39,281, or \$65-per-acre, reduction in the funds borrowed. Liabilities outstanding as of December 31, 1983, were reduced slightly for the first time since 1979. While the feed-grain program contributed to less need for operating funds, other factors, such as the use of funds from savings and the postponement of capital purchases, helped to hold down the borrowed funds. The \$15,338, or \$26 per tillable acre, spent on capital purchases for machinery and equipment is 35 percent below the \$40-per-acre capital purchases common before 1980.

Interest continued to be the highest single farm expense item. It was \$10,099 above the next highest item, which was fertilizer. Interest includes that paid on operating, intermediate, and real estate debt. Interest expense has increased from 12 percent of total farm operating expense (including interest paid) in 1979 to 21 percent in 1983. The \$22,812 interest payment in 1983 was 15 percent of the total cash farm receipts. When interest payments begin to exceed 25 percent of the gross farm receipts, financial troubles with cash flows and ability to repay debt often result.

Estimates based on other farm record studies indicate that these operators probably paid about \$7,000 in interest on operating and machinery debt, leaving about \$16,000 in interest paid on long-term real estate debt. Assuming an average outstanding interest rate of 10 percent would indicate that the average operator in this sample had about \$160,000 in outstanding debt on real estate.

Total living expenses for 1983 showed the most annual increase since 1979. The \$816 increase in living capital expenses, primarily for the family auto, and the 4.6 percent increase in other living expenses reflect the effect of inflation. The \$26,495 in living expenses for a family with 3.6 persons averages to \$7,360 per person.

The records from farm families with 3 to 5 persons were sorted into high- and low-third categories according to the noncapital living expenses. The total living expenses for the high-third group averaged \$37,516 compared with \$18,124 for the low-third group. The high-third group farmed 195 more acres than the other group and owned 28 percent of the land farmed; the low-third group owned 14 percent of the land farmed. The larger farms provided slightly higher taxable incomes. The results indicate that the high-third group had more nonfarm taxable income from off-farm investments, had twice as much outstanding debt, but found it necessary to use up savings to support the higher interest and living costs. Operators in the high-third group average 42 years of age with 4.1 family members compared with 36 years of age for low-third operators and 4.0 family members.

In 1983, the average operator in the all farms sample borrowed \$136 during the year for each tillable acre farmed. This compares with \$199 in 1983 for the same sample. The low one-third living cost group, which included younger farmers, averaged borrowing \$173 for each tillable acre farmed. The business of farming is involving considerable amounts of borrowed capital in relation to annual operating expenses.

When high interest rates are combined with uncertain markets and crop production on highly specialized farms, it is important that more farmers learn how to balance and monitor their cash flows each month. They need to check the percent of gross receipts and total operating expenses going for interest payments. Farmers also should check the level of working capital available (current assets less current liabilities) at the beginning of each year. Working capital levels below about \$10,000 and interest payments above 25 percent of gross farm receipts are apt to cause serious cash flow and liquidity problems. Farmers who learn to do this type of balancing and monitoring will gain confidence in making financial management decisions that are timely and sound. For low equity operators, this monitoring process may provide insights on the timeliness for making debt and asset liquidation adjustments. The data summarized in this process may also serve as a guide in budgeting allowances for family living expenses.

The total family living expense for families in this sample was \$44 for each tillable acre farmed. If the \$11-per-tillable-acre net nonfarm income is used for living expense, \$33 per tillable acre would have to come from 600 acres of corn and soybeans. Each family must determine how much each acre of crop or each litter of hogs should contribute to their family living budget to determine the break-even prices needed.

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June, 1984

84-6/*The Illinois Living Will*

An individual has the right to express his or her wishes about decisions that affect medical treatment when death is imminent. These wishes should be respected by those responsible for the individual's care. The new Illinois Living Will Act, effective January 1, 1984, addresses this issue.

Illinois has joined a number of other states in enacting "Living Will" legislation. The Illinois Living Will Act protects an individual's right to die a natural death. The Act authorizes a legal document, the Living Will, by which a person can make his or her wishes known to physicians, family members, and others with responsibility for health care.

In response to interest in the new Illinois Living Will Act, the following material, set up in a question-answer format, explains the requirements and effect of this new legislation.

THE LEGAL DOCUMENT

1. What is a "Living Will"?

A Living Will is a formal declaration directed to physicians and loved ones. The declaration instructs the attending physician to withhold or withdraw life-sustaining procedures when the declarant (person who makes the Living Will) is suffering from a terminal condition.

2. Is it a legal document?

The Living Will is now an effective legal document in Illinois, when it is signed and witnessed according to Illinois law. Illinois law requires the same legal formality for the Living Will as for an ordinary will.

3. When did it become law in Illinois?

The Illinois legislature passed the Illinois Living Will Act (Public Act 83-824) during 1983, and it was approved September 24, 1983. It became effective January 1, 1984.

EXECUTION OF THE LIVING WILL

4. Who has legal capacity to execute a Living Will?

A Living Will may be executed by any individual of sound mind, who has reached the age of majority (currently 18) or who is an emancipated person under the Emancipation of Mature Minors Act. (This Act provides a means for a mature person over 16 to obtain the legal status of an emancipated person, with the right to enter valid contracts.)

5. When should the Living Will be executed?

The Living Will may be executed at any time that the declarant (person who makes the Living Will) has the legal capacity, as defined above. After the Living Will is signed, the declarant should review it occasionally, to be sure that it still represents his or her intentions.

6. Should the Living Will be part of the regular will or a separate document?

For several reasons, the Living Will should be a separate document. When separate documents are executed, either the regular will or the Living Will can be amended or revoked without affecting the other. Also, the Living Will becomes part of the declarant's medical records. Most people do not want the will that distributes their estate after death to be publicized in this way.

7. Must my attorney prepare the Living Will?

The law does not require the Living Will to be prepared by an attorney. It can be prepared by an attorney, of course, and attorneys may discuss the Living Will with estate planning clients.

8. What kind of format should be used for the Living Will?

The Illinois Living Will Act suggests a format for the declaration. A copy of that language, with one modification, is attached to this fact sheet. The modification is the addition of the last paragraph, appearing just above the signatures of witnesses. This addition is recommended by some attorneys.

The declarant can add other specific directions in the document. These may include directions about particular medical techniques the declarant does not want used, should his or her condition become terminal. If, for some reason, these specific directions are invalid, the rest of the Living Will remains effective.

9. Who must witness the Living Will?

The Living Will requires two witnesses who know the declarant personally. The witnesses may not be related to the declarant by blood or marriage. They may not be entitled to any portion of the declarant's estate, either through declarant's will or the laws of intestate succession. Moreover, the witnesses cannot be financially responsible for declarant's medical care.



10. May my physician witness the Living Will?

Although the law does not answer this question directly, it would seem that the physician responsible for the declarant's care should not witness the Living Will.

11. Must the Living Will be notarized?

The Illinois law does not require the signature of a notary public on a Living Will.

12. How should a person decide whether to execute a Living Will?

An individual should consider the various implications of the Living Will: medical, financial, religious or ethical, and personal (especially the effect on family members). It might be helpful to discuss the Living Will with persons who have had the experience of caring for a terminally ill relative or friend.

Although signing the Living Will is a personal decision, that decision will affect others, especially members of the family. Therefore an individual might want to discuss the Living Will with one or more of the following individuals: spouse, children, close relatives, or friends; physician or other health care professional; attorney; financial advisor.

13. What should a person do with the Living Will after it is signed and witnessed?

A copy of the Living Will should be given to the declarant's personal physician, for inclusion in permanent medical records. The original should be retained with other important papers. Several relatives or friends should be told of the existence and location of the document, so they can produce the Living Will in case the declarant is hospitalized away from his or her regular physician.

14. Is a Living Will signed before January 1, 1984 still effective?

Some persons may have signed a Living Will before the Illinois law became effective. These Living Wills may not have used the language suggested in the Illinois law; others may not have been witnessed as required. In any case, it is not entirely certain that a pre-1984 Living Will is valid under the Illinois Living Will Act. Individuals whose Living Wills were executed before 1984 probably should sign new Living Wills that follow the Illinois law.

EFFECT OF THE LIVING WILL

15. When does the Living Will become effective?

A Living Will becomes effective when a declarant's physician diagnoses a terminal condition and verifies the diagnosis in writing. Life-sustaining procedures are then withdrawn or withheld, and the patient is permitted to die naturally.

16. What is a terminal condition?

The law defines a terminal condition as an incurable condition from which death is imminent and life-sustaining procedures will only postpone the moment of death.

17. Who decides if an illness is terminal?

The attending physician who has examined the patient makes this decision.

18. What is a life-sustaining procedure?

It is a medical procedure or intervention that, in the judgment of the attending physician, would only postpone the moment of death.

Life-sustaining procedure does not include the administration of sustenance. Nor does it include the use of medication or any medical procedure needed to provide comfort care or to alleviate pain. Thus, a person who has signed a Living Will would not be deprived of pain-killing drugs.

THE PHYSICIAN AND THE LIVING WILL

19. How does the physician learn about the Living Will?

The patient who has signed a Living Will must notify his or her attending physician. The physician then makes the Will (or a copy of it) a part of the patient's medical record.

20. Must the attending physician follow the Living Will?

A physician who has been notified of the Living Will must, without delay, verify the terminal condition in writing so the patient will qualify for withdrawal or withholding of life-sustaining procedures under the Act.

If a physician cannot in conscience comply with the declaration, the patient or the patient's family may request referral to another physician. The physician must then transfer the patient and the medical records to the new physician without delay.

21. Does the law protect the physician?

The physician who issues the written diagnosis of a condition as terminal is presumed to be acting in good faith. He or she is immune from civil or criminal liability unless it is proved that the action violated standards of reasonable professional care and judgment.

The physician, or other health care professional or facility, that withdraws or withholds life-sustaining procedures as directed by the patient's Living Will shall not be criminally or civilly liable or be guilty of unprofessional conduct.



REVOCATION

22. How long is a Living Will valid?

The Will is valid until it is revoked by the declarant. In addition, Illinois law provides that the Living Will is not effective during pregnancy.

23. How can the Living Will be revoked?

The Illinois law prescribes three methods for revoking a Living Will:

1. The Will can be obliterated, burnt, torn or otherwise defaced in a way that shows an intention to cancel the Will.
2. The Will can be revoked in a writing signed by the declarant or another person acting at declarant's direction.
3. The Will can be revoked by the declarant's oral expression of an intention to revoke. The oral expression must be made in the presence of a witness 18 or older, who then signs and dates a written confirmation of the oral revocation. The revocation becomes effective when the physician receives the writing of this witness.

OTHER ISSUES

24. Will the Living Will affect insurance coverage?

The law provides that making a Living Will shall not affect the issuance of a life insurance policy or modify the terms of an existing policy. Nor can a Living Will be required as a condition for receiving medical insurance or health care services.

25. Does the law permit euthanasia (mercy killing)?

The Living Will Act specifically states that it does not condone, authorize, or approve mercy killing or permit any deliberate act or omission to end life. The Act merely permits the natural process of dying to occur.

26. What happens if a relative or other person conceals a Living Will?

The law states that a person who willfully conceals, cancels, or damages someone else's Living Will without consent (or forges a revocation) is civilly liable.

27. What if a Living Will is forged?

A person who forges the Living Will of another or who conceals or withholds personal knowledge of a revocation may be prosecuted for involuntary manslaughter. He or she may be prosecuted if the forgery or concealment 1) was done willfully with the intent to cause withholding or withdrawal of



life-sustaining procedures contrary to the wishes of the patient; and 2) directly causes procedures to be withdrawn or withheld, thereby hastening the death of another.

28. Do other states have Living Will laws?

Since the late 1970s, a number of states have enacted Living Will laws. New laws continue to be enacted, but many states do not yet have this law. Also, the provisions of the laws differ from state to state.

29. If I sign a Living Will in Illinois and then move to another state, will the Living Will continue to be effective?

Because not all states have Living Will laws, and the existing laws are not identical to the Illinois law, it is not safe to assume that physicians in another state will follow an Illinois Living Will. An Illinois resident who moves to another state should comply with his or her new state's Living Will law.

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LIVING WILL

Declaration made this _____ day of _____ (month, year). I, _____, being of sound mind, willfully and voluntarily make known my desires that my moment of death shall not be artificially postponed under the circumstances set forth below, do hereby declare:

If at any time I should have an incurable injury, disease, or illness judged to be a terminal condition by my attending physician who has personally examined me, and has determined that my death is imminent except for life-sustaining procedures, I direct that such procedures be withheld or withdrawn, and that I be permitted to die naturally with only the administration of medication, sustenance, or the performance of any medical procedure deemed necessary to provide me with comfort care.

In the absence of my ability to give directions regarding the use of such life-sustaining procedures, it is my intention that this declaration shall be honored by my family and physician as the final expression of my legal right to refuse medical or surgical treatment and accept the consequences from such refusal.

I understand the full import of this declaration and I am emotionally and mentally competent to make this declaration.

Signed _____
City, County and State of Residence _____

The declarant has been personally known to me and I believe him or her to be of sound mind. I did not sign the declarant's signature above for or at the direction of the declarant. I am not related to the declarant by blood or marriage, entitled to any portion of the estate of the declarant according to the laws of intestate succession or under any will of declarant or codicil thereto, or directly financially responsible for declarant's medical care.

I further certify that the above instrument was on the date thereof signed and declared by _____ as his/her declaration in my presence and in the presence of the other attesting witness and that we, at his/her request and in his/her presence and in the presence of each other, have signed our names as witnesses thereto believing _____ to be of sound mind and under no restraint at the time of signing the above instrument.

Date _____ Witness _____
Address _____

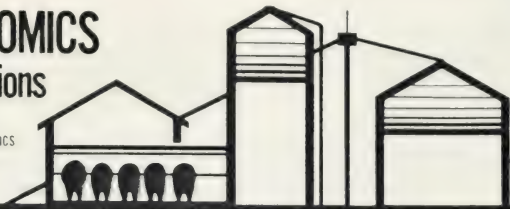
Date _____ Witness _____
Address _____



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



July, 1984

84-7/Illinois Farmers View Farm Policy Issues

Some very significant decisions on the future direction of U.S. agricultural and food policy will be made in 1985. The Agricultural and Food Act of 1981 expires at the end of 1985, and some actions by Congress can be expected before that time. Looking at past history, we might expect a continuation of past legislation with some changes here and there. However, the farm commodity program model that has been in place since 1933 may be unable to meet the needs and demands of the agricultural and food industry for the remainder of the 1980s. Never before has Congress had to wrestle with revisions to major agricultural legislation, as it has done each year since 1981. Some major changes may be in store next year.

To find out how Illinois farmers view the key agricultural and food issues that will be discussed and debated when Congress writes new legislation, a questionnaire was mailed to 1,500 farmers in early March. The sample, drawn by the Illinois Cooperative Crop Reporting Service, was designed to be representative of all farmers in the state. Similar surveys were also taken in 16 other states. Survey results for Illinois are presented in this fact sheet.

FUTURE POLICY DIRECTION

Illinois farmers are divided on what they would like to see as the future direction of production and price support policy. The most predominate feeling, expressed by 33 percent of those responding, was to keep existing voluntary programs but with minor revisions. The next most frequent response, by 23 percent, was to have a mandatory set aside and price support program in years of excess supply, with all producers required to participate if approved in a farmer referendum. However, about 21 percent would like to eliminate all set aside, price support, and government storage programs. The remaining 23 percent were undecided, had other responses, or did not answer the question.

AREAS OF AGREEMENT

A majority of Illinois farmers agreed on the following issues.

Target prices and deficiency payments should be continued. Although they add to government program costs, and the current administration tried to eliminate them in 1981, 58 percent of those responding would like to have them continued. There was less agreement as to where target prices should be set. About 34 percent would like to see them higher than 1984's prices, 41 percent would like to see them kept about the same, 9 percent would set them lower, and 17 percent had no opinion or did not respond.

Loan rates for all price-supported commodities should be based on the average market price for the past 3 to 5 years. Among all farmers, 54 percent agreed with this policy for setting loan rates. Responses were about the same, regardless of size and type of farm.

The payment in kind program (PIK) should be used again if large stocks reappear. A majority of all farmers who responded and a majority of farmers in all size groups favored this idea. However livestock farmers showed less favorable feelings toward a repeat of the PIK program than any other group.

Soil Conservation. Each farmer should be required to follow recommended soil conservation measures on his farm to qualify for price and income support programs. On this issue, 65 percent of all farmers agreed. The feeling prevailed among all sizes and types of farms. A majority of farmers would favor giving more funds to the states with the greatest conservation needs.

The present Farmers Home Administration policy of not foreclosing on borrowers unless all other repayment efforts have failed should be continued, according to 57 percent of those responding. Although moratoriums have been discussed among various farm groups, only 15 percent of those responding said that a moratorium should be provided on all foreclosures; only 7 percent favored a moratorium on foreclosures for selected young "deserving" farmers. Among all responding, 15 percent would set a stricter policy on delinquent loans and increase the number of foreclosures.

To increase agricultural exports, a majority of farmers would encourage lower trade barriers by major importers, promote bilateral trade agreements, strengthen the General Agreement on Tariffs and Trade, and expand farmer-financed foreign market development programs. Although not a majority, more than 40 percent of all respondents favored matching export subsidies of our competitors, establishing a marketing board, and providing more funds for food aid to hungry nations.

A strong majority of respondents favor reduction of the federal deficit to help reduce interest rates and to reduce the debt burden on future generations.

Should the federal budget be balanced, even if it means a substantial cut in all government programs, including farm price and income supports? Yes; 64 percent of all farmers who responded agreed that the budget should be balanced, and they were willing to help by accepting reductions in expenditures on farm price support programs.

CONCENSUS ISSUES

The following issues did not receive a majority response but drew a consensus of 40 percent or more:

Payments for acreage diversion should be continued.

The farmer-owned grain reserve should be continued. The size of the grain reserve should be set as a percentage of the previous year's use.

The all risk crop insurance program should be continued, where producers pay about 70 percent and government about 30 percent of the cost.

Future farm programs should be changed to give the most benefits to farmers with gross annual sales under \$40,000.



If major changes are required in funding government programs, farmers would favor a low "safety net" target price and loan program rather than income insurance or other proposals.

Make no change in the \$50,000 limit on direct payments.

DIVIDED VIEWS

The issues on which Illinois farmers are most divided are:

Whether future policy should continue voluntary programs, shift to mandatory set aside and price support programs, or eliminate set aside, price support, and government storage programs completely.

The value, adequacy of coverage, and the ease of understanding federal crop insurance.

Whether the milk incentive program with payments for dairy farmers should be continued if needed after 1985.

How future farm programs should be administered. While some farmers would favor continued decision making by Congress and the Secretary of Agriculture, others would favor an independent board or commission that would operate under congressional guidelines or a farmer-financed, controlled, and administered program.

Future expenditures for food stamps. Among farmers, some would decrease expenditures, a few would increase them, some would keep them about the same, and some would eliminate them completely.

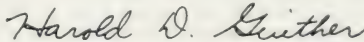
Whether support prices should be lowered to increase export sales.

Whether the United States should join an export cartel with other major exporters to increase export sales.

Whether a two-price plan should be set up with a higher price for commodities used in the domestic market and a lower price in the export market.

CONCLUSION

A more complete understanding of how Illinois farmers view the major agricultural food, and economic policy issues should be a useful starting point to build coalitions and bridges with other groups also working to achieve similar policy goals.



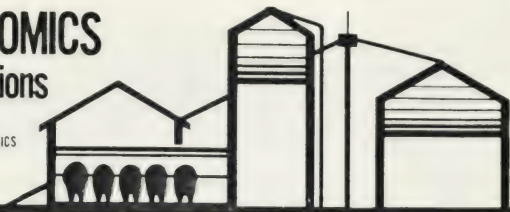
Harold D. Guither, Extension Economist, Public Policy



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



July, 1984

848/Illinois Farm Property Tax Levels

INTRODUCTION

The Illinois property tax was once again the subject of attention in the Illinois General Assembly in 1984. A major reason for this attention was a decline in the assessed valuation, particularly farm assessments, against which the property tax is levied. Lower assessments without higher tax rates mean less tax revenues to support the budgets of local governments. Of course, the property tax is the major source of tax revenue for local governments, providing more than 80 percent of the total tax revenue raised by local governments in Illinois.

School districts are very dependent on the property tax. The concern for rural schools was the major reason that legislation was passed to slow the reduction in farm assessments. Under the legislation signed into law in late June, 1984, the assessed valuation on farmland in a county, beginning in 1984 (taxes payable in 1985), cannot change by more than 10 percent from one year to the next. The objective of the limitation is to provide some stability in the tax base of local governments, particularly rural schools that depend heavily on farm real estate taxes to finance services. Of course, the 10 percent limitation will allow more revenues to be raised in 1985 and 1986 than would have otherwise been possible without an increase in the tax rates. In 1982, more than 400 of the state's 1,012 school districts had over 50 percent of their property tax base in farmland.

Under Illinois's 1981 use-value farmland assessment law, the weak economic conditions in agriculture were causing reductions in farm assessments with a major reduction taking place with 1984 assessments. These changes will now be limited in each county to 10 percent from the 1983 assessments. Making a distinction between taxes and assessments is not easy, but if recent legislative actions and their impact on Illinois farmland owners are to be understood, this distinction must be clear. A brief comparison of what has occurred in Illinois will be helpful.

FARM PROPERTY TAXES AND SCHOOLS

Concern for rural schools and their financial health culminated in limitations being placed on the movement in farmland assessments, beginning this year. These limitations will help the budgets of schools in the 1985-86 school year and have an impact on farm taxes paid in 1985. School districts are commonly referred to in Illinois as receiving the largest share of the property tax dollar. For the entire state, in 1981 (the most recent year with complete data) schools claimed 57.6 percent (\$3.021 billion) of the \$5.2 billion in property taxes collected. In other words, about 58 cents from every dollar of property taxes paid by the average Illinois taxpayer financed school expenditures.



For the average farm property taxpayer, however, about 76 cents from every dollar paid is spent by schools (Figure 1). A greater percentage of farm property taxes goes to school districts because farm property is generally not taxed for municipal services. The major governments supported by farm property taxes in addition to schools are counties (11.4 percent), townships (8.5 percent), fire protection districts (2.6 percent), and other special district governments (1.6 percent).

A major determinant of the level of Illinois farm property taxes is the dependence of rural schools on this source of revenue. Financing schools through some other means would reduce property tax levels on farm real estate by about 75 percent. This change in school finance would lower nonfarm real estate taxes by approximately 58 percent. Of course, funds for schools would have to be replaced with some other tax if property taxes were no longer used.

FARM PROPERTY TAX' LEVELS

A consequence of the use-value assessment of farmland in Illinois is increased information on farm assessments and thus expected farm property taxes. For example, in May 1983 the assessment figures for 1984 (taxes payable in 1985) were released, showing a decline in value. Legislative action was consequently taken to somewhat insulate the tax base of schools and other rural governments from these future declines. Because of the lags in the property assessment-tax cycle, these events occurred when property taxes paid by farm owners were still on the rise.

The per acre property taxes for a sample of Illinois grain farms for the ten most recent years for which data are available are listed in Figure 2. Also included are data for the sample farms in the northern 68 counties and the southern 34 counties. In 1983, there were 1,984 grain farms in the sample, 1,338 from northern Illinois and 646 from southern Illinois. These farms contained 1.4 million acres of land. The average tax paid in 1983 was \$15.75 per acre. This was up from \$15.18 per acre in 1982. Of course, 1983 taxes are based on assessments made in 1982, 1982 taxes are based on 1981 assessments, and so forth.

Southern Illinois farm property taxes were essentially constant from 1982 to 1983 with \$9.26 per acre being paid in 1983. This is about twice the level of per acre tax paid in southern Illinois in 1973 (\$4.96 per acre).

The 1982-83 increase in grain farm property taxes in Illinois can be traced to the 3.75 percent increase that occurred in northern Illinois. In 1983, per acre taxes were \$19.91 per acre as compared with \$19.19 in 1982. As in the southern counties, the level of property taxes in northern parts of the state in 1983 is about double the 1973 level (\$9.87 per acre). The historical 2 to 1 ratio of southern Illinois average per acre taxes to northern Illinois taxes continues.

Although per acre property taxes increased between 1982 and 1983, farm assessments in Illinois declined; 1982 assessments (the base for 1983 taxes) were \$9.082 billion down from \$9.483 billion in 1981 (the base for 1982 taxes). With assessments declining 4.42 percent, tax rates on farm property had to increase to cause taxes to go up. In 1981, the average farm tax rate was 4.72 percent, up from the 1980 rate of 4.66 percent. When available, the 1983 rate will be higher yet. The range in farm tax rates across Illinois counties is quite wide. For example, in 1981, Franklin County reported the highest rate of 6.05 percent, while Jasper County's rate was lowest at 3.39 percent.

Another measure of the burden of the property tax on farms in Illinois is the effective tax rate. The effective rate compares property taxes to land values. These



rates for the last 10 years are presented in Table 1. After almost 10 years of continuous decline, effective tax rates increased in 1983 by 14.3 percent to 0.64 percent. As land values increased faster than property taxes during the 1970s, effective tax rates dropped. However, weak land markets with declining values in combination with continued growth in property taxes reversed this trend. The average effective rate in northern Illinois counties is about 18 percent greater than the average effective rate computed for southern Illinois. The last column in Table 1 shows the percentage of landlord crop-share rent used to pay property taxes.

Table 1. *Effective Property Tax Rates on Illinois Farms, 1973-83*

Tax year	Effective tax rate (percentage) ^a			Property taxes as percent of land rent ^b
	Northern Illinois	Southern Illinois	Illinois	
1973	1.57	1.26	1.47	11.70
1974	1.61	1.31	1.42	9.93
1975	1.12	0.99	1.11	13.49
1976	1.02	0.88	0.96	11.74
1977	0.93	0.75	0.86	15.00
1978	0.74	0.62	0.72	15.29
1979	0.72	0.59	0.68	14.18
1980	0.69	0.54	0.65	15.11
1981	0.60	0.49	0.56	17.41
1982	0.58	0.51	0.56	18.33
1983	0.66	0.56	0.64	16.79

^aEffective tax rate is property taxes as percent of farmland value, computed by using only grain farms.

^bThis percentage refers to a group of northern and central Illinois grain farms. Land rent is the landlord's crop-share rent and includes property taxes.

SUMMARY

Concern over the future financial condition of rural schools brought legislative action in 1984 that limited the change in assessments on farmland associated with the poor economic conditions in Illinois agriculture. However, through 1983, lower assessments on farms did not result in lower taxes, as tax rates were increased by taxing jurisdictions. The most important taxing body is, of course, rural schools, which receive 75 percent of the \$500 million in farm real estate taxes paid. Whether tax rate increases can continue to stave-off the financial impact of lower farm assessments in 1984 is uncertain. Fiscal pressures on rural schools and concern for farm property tax levels are policy issues that will be faced in Springfield and across Illinois in the months ahead.

David L. Chicoine

David L. Chicoine, Extension Economist



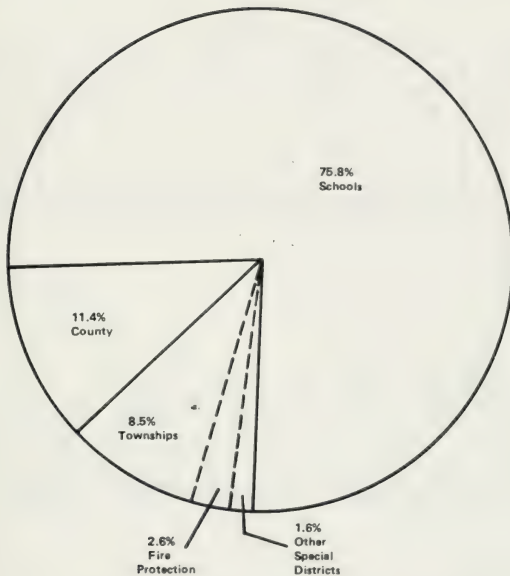


Figure 1. Estimated distribution of 1981 farm property tax extensions



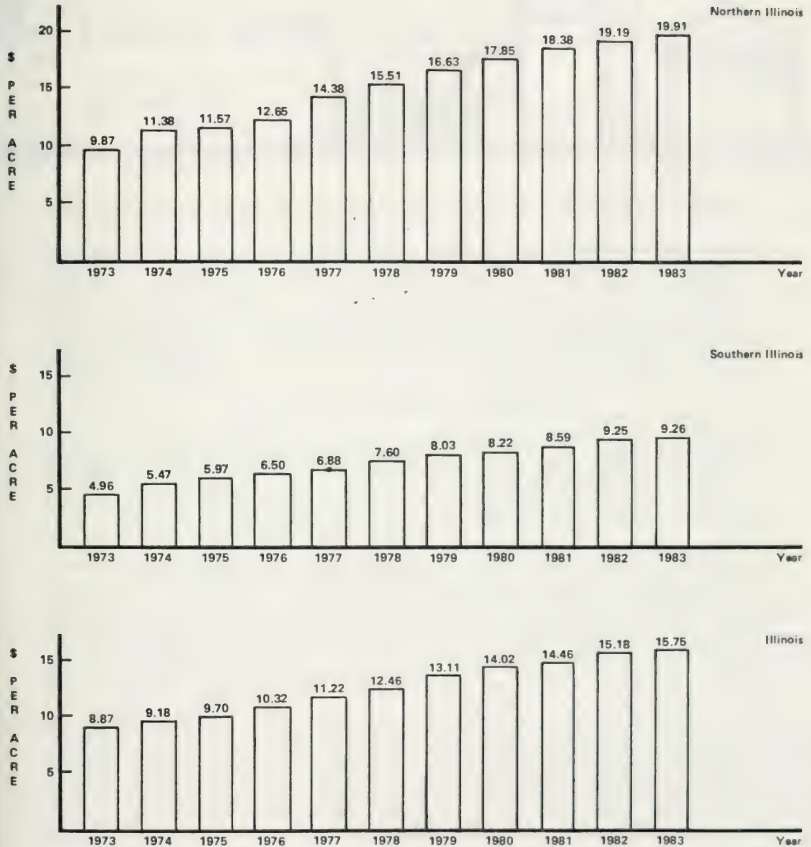


Figure 2. Per acre property taxes on Illinois farm real estate, 1973-1983



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August, 1964

84-9/Changes in the Uniform Commercial Code and Landlord's Lien

The financial difficulty experienced by farmers in recent years has also created some conflict between persons who purchase farm products (for example, grain elevators and livestock buyers) and persons who have security interests or liens in the farm products (agricultural lenders and landlords). Recent developments in Illinois law have significantly reduced the risk associated with the purchase of farm products, partly at the expense of agricultural lenders and landlords who must take additional steps to protect their liens. The background and nature of these legislative developments can best be understood by first examining a lender's security interest in crops or livestock, and then examining the landlord's lien on crops.

SECURITY INTERESTS IN CROPS AND LIVESTOCK

Lenders often advance money to a farmer and, through a security agreement, use the farmer's crops and livestock as collateral for the loan. Under prior law if the crops or livestock had been sold to a third party, such as another farmer or a grain elevator, or had been sold by a commission merchant, the lender could collect from the purchaser or commission merchant if the lender had filed a financing statement with the county recorder. These rules were criticized because, as a practical matter, they made elevators and livestock commission merchants insurers of a farmer's debt.

Proponents of change noted that the general rule of commerce allowed purchasers in the ordinary course of business (for example, farmers buying feed or seed from dealers) to acquire products free and clear of any security interest created by the seller. They argued that the same rule should apply to transactions involving the purchase of farm products from farmers. Elevators, in particular, argued that it was not feasible to search county records for recorded security interests every time a load of grain was delivered for sale. And commission merchants and livestock buyers argued that a search was not feasible for them because the livestock transaction frequently occurred far away from the county office where financing statements describing the livestock would be filed.

The Illinois legislature was apparently persuaded by these arguments, for it amended the law effective September 15, 1963. The new law (Public Act 83-69) provides that lenders cannot collect the defaulting farmer's debt from the buyers of farm products or commission merchants unless these persons are given actual written notice that the grain or livestock is collateral for a loan. The notice must be sent by registered or certified mail and is valid for five years. The same law allows lenders to require their borrowers to provide a list of prospective buyers and commission merchants. The law also makes it unlawful for the farmer-debtor to sell to persons not included in that list, unless the farmer gives the lender seven days' notice.

The new law may prompt some change in conduct. Lenders may request farmers to execute new security agreements when new loans are made, and the new agreements will likely require farmers to supply the names and addresses of prospective purchasers and commission merchants. Lenders may send the notices to these prospective purchasers because this is the only way the lender can really protect his security interest. Buyers of farm products, such as grain elevators, may maintain a file of the notices received, check this file before making payment, and insist on issuing checks jointly payable to the farmer and the lender where the buyer has received a written notice of a security agreement. All such actions are reasonable in light of the new law. Lenders, grain elevators, livestock buyers, and commission merchants may want to discuss the impact of the new law with their legal counsel.

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LANDLORD'S LIEN IN CROPS

Grain produced by a tenant on landlord's land is security for the payment of rent. This right of the landlord in the tenant's crops is known as the landlord's lien. In many situations, if the tenant did not pay the rent and if the grain was in the hands of a grain elevator or other party who purchased it from the tenant, the landlord could collect the unpaid rent from the grain in their hands.

The new law (Public Act 83-70, effective August 16, 1983) allows landlords to collect from persons purchasing grain from the tenant only if the landlord provides written notice of the landlord's lien to the purchasers by registered or certified mail. The notice must be sent to the purchaser within the six-month period preceding the purchase of the grain, contain the names and addresses of the landlord and tenant, and clearly identify the leased property.

The amendment requires the landlord to give written notice to the purchaser if the landlord's lien is to be protected. The landlord may require (preferably in the lease) that the tenant disclose the names of prospective buyers prior to selling the crops. When the landlord requires the tenant to disclose prospective buyers, the tenant, under penalty of law, may not sell the crops to anyone but the disclosed buyer. The tenant, however, will not be penalized if the tenant makes full payment to the landlord within 10 days after selling to an undisclosed buyer.

Landlords may choose to acquire the names and addresses of prospective purchasers and send the notices described in the Act. If so, lease modifications that would require disclosure of prospective purchasers should be negotiated before the leases are renewed. Landlords should also consider the use of a security agreement with the tenant, similar to the security agreement used by lenders to secure their loans. Landlords may want to discuss these alternatives with their legal counsel, especially in circumstances where the landlord is concerned about the financial condition of the tenant.

Prepared by Donald L. Uchtmann, Professor and Extension Specialist in Agricultural Law.

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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August 1, 1984

Valuing Farm Input Handbook
Section 4 - No. 1

84-10/Guide for Adjusting Custom Rates and Machine Rental Rates for 1984-1985

Custom field operation rates are charges made for the use of field equipment, the time of the operator, necessary mechanical power, other supplies furnished, such as tractor fuel, wire or twine for baler, and an allowance for risk and overhead. Rental rates are for the use of the power unit and the machine only. There are two methods of establishing the charge for a particular operation. One is the market rates charged. The other is the cost of performing the operation or providing the machine services.

CUSTOM RATE COST INDEX

In the absences of current market rates, index numbers of prices paid by farmers for selected classes of expenditures can be used to adjust historical market rates for increased costs. Index of prices paid by U.S. farmers for selected production items directly related to the costs of providing custom farm operations are presented in Table 1. The weightings of the four items for the calculated custom rate cost index are as follows: tractors and self-propelled machinery 30%; other machinery and implements 25%; fuel and energy 15%; and farm wage rates 30%. The base for each index is 1977. The data in the column -- percent change from previous year -- uses the previous year as the base. The custom rate cost index assumes custom rates are based on costs of performing operations and no change in the efficiency of performing the operation.

Table 1. CALCULATED CUSTOM RATE COST INDEX AND ANNUAL CHANGES, 1977-1984

Year	Index of Prices Paid by U.S. Farmers for Production Items 1977=100				Estimated custom rate cost index b	Percent change from previous year
	Tractors and self-propelled machinery	Other ma- chinery and implements	Fuels and energy	Wage rates		
1977	100	100	100	100	100.0	--
1978	109	108	104	107	107.4	7.4
1979	121	119	137	117	121.7	13.3
1980	136	132	188	126	139.8	14.9
1981	152	146	213	136	154.8	10.7
1982	165	160	211	143	164.0	5.9
1983	174	171	202	147	169.4	3.3
1984/c	180	180	202	152	174.9	3.2

FOOTNOTES: (a) Source: Agricultural Prices, SRS, USDA. (b) Tractors and self-propelled machinery weighted by 30% other machinery and implements 25%, fuel and energy 15%, and wage rates 30%. (c) June 15 estimates and June to June change.

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LANDLORD'S LIEN IN CROPS

Grain produced by a tenant on landlord's land is security for the payment of rent. This right of the landlord in the tenant's crops is known as the landlord's lien. In many situations, if the tenant did not pay the rent and if the grain was in the hands of a grain elevator or other party who purchased it from the tenant, the landlord could collect the unpaid rent from the grain in their hands.

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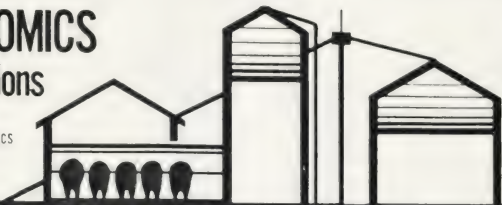
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METHOD OF COMPUTING DIRECT COSTS OF OPERATING POWER AND IMPLEMENTS
 (* Estimated return for management, overhead and risk)

	Power unit (tractor or self- propelled unit)	Implement	Total
1. Machine	<u>TRACTOR</u>	<u>Chisel Plow</u>	
2. Size	<u>180 HP</u>	<u>15 ft.</u>	
3. Purchase price	<u>\$72,500</u>	<u>\$4,000</u>	
4. Ownership and repair cost (see Table A)	<u>.0004</u>	<u>.00177</u>	
5. Hourly ownership and repair cost (3 x 4)	<u>\$29.72</u>	<u>\$7.08</u>	
6. Fuel and lubrication, cost per hour ^a	<u>\$13.72</u>	<u>\$ -</u>	
7. Total power and implement, cost per hour (5 + 6)	<u>\$43.44</u>	<u>\$7.08</u>	<u>= \$50.52</u>
8. Labor cost per machine-hour on the job ^b			<u>\$8.92</u>
9. Total costs per machine-hour on the job for operation (7 + 8)			<u>\$59.44</u>
10. Units of work per machine-hour on the job (acres, bushels, tons, bales) ^c			<u>6.5</u> Units
11. Total cost per unit of work (9 ÷ 10)			<u>\$9.14</u>
		10% rate	25% rate
12. Adjustment for risk, time for moving from job, other overhead, and profit margin [line 11 x (10 to 25%)]		<u>\$</u>	<u>\$</u>
13. Estimated machine hire rate per unit of operation		<u>\$</u>	<u>\$</u>

a $\frac{180}{\text{PTO HP}} \times \begin{matrix} .069 \text{ for gasoline} \\ .0504 \text{ for diesel} \\ .0823 \text{ for LP gas} \end{matrix} \times \begin{matrix} .75 \text{ for light load} \\ 1.00 \text{ for ave. load} \\ 1.25 \text{ for heavy load} \end{matrix} \times \frac{\$1.21}{\text{price per gallon}} = \frac{\$13.72}{\text{fuel cost per hour}}$

b $\frac{8.50}{\text{wage rate}} \times \frac{1}{\text{no. of workers}} \times \begin{matrix} 1.05 \text{ for tillage operations} \\ 1.10 \text{ for harvesting operations} \\ 1.20 \text{ for planting, spraying} \end{matrix} = \frac{\$8.92}{\text{Labor cost per machine hour}}$

c $\frac{180}{\text{width in inches}} \times \frac{4.5}{\text{m.p.h. speed}} \times \frac{.80}{\text{field efficiency}} \times .01 = \frac{6.5}{\text{acres per hour}}$

Table A. Amount of Assumed Use, Assumed Ownership and Repair Costs Per Hour, Per Dollar of the List Price and Rates of Performance Coefficients to be Used in Estimating Costs of Operating Power and Implements

	Number of years of use	Annual hours of use	Cost of owner- ship and re- pair per hour, per dollar of list price	Speed (MPH)	Field- efficiency coefficient
Tractor	10	400	.00041	...	...
Basic combine	5	250	.00094	...	...
Corn head	5	150	.00167	2.7	.65
Grain head	5	100	.00217	3.0	.70
Heavy tillage tools ^{1/}	10	100	.00177	4.5	.80
Light tillage tools ^{2/}	10	100	.00150	5.0	.80
Planter only	8	75	.00278	4.5	.70
Planter with attachments	8	75	.00278	4.5	.65
Grain drill	8	75	.00278	4.5	.70
Fertilizer equipment	8	75	.00256	4.5	.65
Spraying equipment	8	75	.00276	5.0	.65
Mower	10	100	.00175	5.0	.80
Mower - conditioner	10	100	.00167	5.0	.80
Hay rake	10	100	.00167	5.0	.80
Hay baler, forage wagon	10	100	.00153	3.5	.75
Forage harvester, blower	10	100	.00166	2.5	.60
Grain wagon	10	100	.00150	...	...
Manure spreader	10	100	.00156	5.0	.70
Liquid manure spreader	10	100	.00156	...	...

^{1/} Includes moldboard plow, chisel plow, field cultivator, and row cultivator.

^{2/} Includes disk harrow, spike tooth harrow, and rotary hoe.

NOTE: Costs were based on 5, 8, or 10 years of depreciated life, an interest rate of 12 percent, insurance at 1/2 percent, and housing at 1 1/2 percent of the remaining value of the beginning of the year. The purchase price was assumed to be 90 percent of the manufacturer's list price, plus freight and the dealer's setup cost.



Table 2. - DIRECT COSTS OF MACHINE SERVICES (excluding Management, Overhead and Risk)
(Guide to Custom and Rental Rates for Farm Equipment) a/

Field Operation	Unit	Power, machine fuel and labor Costs	Power and machine costs	Machine costs only
TILLAGE OPERATIONS				
Moldboard plowing	acre	\$ 13.75	\$ 9.00	\$ 3.75
Chiseling, 8"-10"	acre	9.00	5.50	1.00
Coulter chiseling	acre	11.75	7.50	3.00
Field cultivation	acre	5.50	3.50	1.50
Offset disking - reg.	acre	7.75	4.75	2.00
deep	acre	11.25	7.75	3.50
Tandem disking	acre	6.00	4.00	2.00
Disking and applying insecticide and herbicide	acre	7.50	5.00	2.75
Combination tool (disc - cult- level)	acre	7.50	4.75	2.00
Packer mulching	acre	5.25	3.25	1.75
Stalk shredding	acre	6.00	3.50	1.50
Row cultivating	acre	6.25	3.75	1.50
Rotary hoeing	acre	1.75	1.00	.50
TILLING AND PLANTING				
Field cultivating and planting corn or soybeans	acre	13.00	10.50	8.00
Packer mulching and drilling soybeans	acre	12.00	9.00	6.75
PLANTING				
Planting corn or soybeans only	acre	9.50	7.50	6.25
Planting corn or soybeans & applying chemicals	acre	10.50	8.25	7.00
No till planting	acre	12.25	10.00	8.00
Drilling small grain	acre	8.75	6.00	4.25
No till drilling	acre	13.00	10.00	8.00
Power till seeding	acre	12.50	9.00	7.00
Broadcast seeding	acre	1.50	.50	.15
APPLYING FERTILIZER				
Anhydrous ammonia	acre	5.25	3.50	2.00
Mixed dry fertilizer	acre	2.00	1.25	.70
SPRAYING (excluding materials)				
Field spraying	acre	3.25	2.00	.75
Fence row spraying	hour	27.50	----	----
Rope wick applying	acre	2.75	1.00	.20

(This table is continued on the next page.)

Table 2. - DIRECT COSTS OF MACHINE SERVICES (excluding Management, Overhead and Risk)
(Guide to Custom and Rental Rates for Farm Equipment) ^{a/}

Field Operation	Unit	Power, machine fuel and labor costs	Power and machine costs	Machine costs only
HARVESTING GRAIN				
Combine soybeans or wheat	acre	\$ 24.00	\$ -----	\$ 20.00
Combine corn	acre	28.00	-----	24.00
Combine and store	bu.	.30	-----	-----
Pick and store ear corn	acre	40.00	25.00	16.00
Haul grain	bu.	.08	.03	-----
Dry grain	bu. point	.0225	-----	.012
HARVESTING FORAGES				
Mowing hay	acre	5.00	2.25	1.00
Mow, condition, windrow	acre	8.50	5.50	3.50
Raking hay	acre	5.00	2.25	1.00
Baling sq. bales - wire tie	bale	.32	.13	.07
-twine tie	bale	.24	.12	.06
Baling large round bales	bale	4.75	2.75	1.75
Stacking (1 1/2 tons)	stack	7.00	4.50	2.50
Stacking and moving	stack	9.00	5.50	2.75
Field chop only - corn				
silage - 2 row chopper	hour	48.00	33.00	21.50
	ton	2.70	1.85	1.20
Silo filling with 2 row				
chopper wagons & blowers	hour	86.50	-----	-----
	ton	4.80	-----	-----
TRACTOR RENTAL				
50 PTO H.P. 2 W.D.	hour	\$ -----	\$ -----	\$ 6.00
65 PTO H.P. 2 W.D.	hour	-----	-----	9.25
85 PTO H.P. 2 W.D.	hour	-----	-----	12.25
105 PTO H.P. 2 W.D.	hour	-----	-----	15.00
130 PTO H.P. 2 W.D.	hour	-----	-----	18.50
155 PTO H.P. 4 W.D.	hour	-----	-----	22.00
180 PTO H.P. 4 W.D.	hour	-----	-----	29.00
225 PTO H.P. 4 W.D.	hour	-----	-----	35.00

^{a/} Adapted from Computation of Costs of Performing Farm Operations, Pricing and Valuing Farm Input Handbook - Section 4 - No. 3.

The estimated costs of using machines and changes in custom rate index are starting points for establishing a custom rate for a particular situation. The supply and demand of machinery and adverse field and weather conditions alter the appropriate custom rate from case to case.

R. A. Hinton

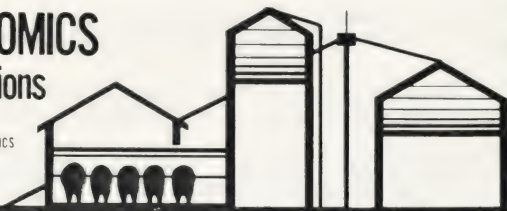
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FARM ECONOMICS

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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1984

84-11/Lease Versus Purchase of Depreciable Farm Assets

Farm tractors, combines, grain storage bins, sealed storage systems, and a variety of other depreciable farm assets may be acquired by purchasing (often with borrowed funds) or by financial leasing. A growing number of farmers are expressing an interest in financial leasing because of its potential advantages over outright purchase. Likewise, dealers and manufacturers see financial leasing as a mechanism that will improve sales and capture tax advantages. A growing number of lenders are also offering financial leasing as an alternative to lending money.

There are basically two types of leases for depreciable farm assets--operating leases and financial leases. Under an operating lease, the asset is leased on an hourly, daily, weekly, or monthly basis. Maintenance and repair costs are typically borne by the lessor. In addition, it is likely that over the life of the asset there will be more than one lessee. In contrast, a financial lease is normally for an extended period of time with a buyout option at the end of the lease period. The lessee is normally responsible for all repairs and maintenance associated with the asset. Our discussion here will focus only on financial leases.

POTENTIAL ADVANTAGES OF FINANCIAL LEASING

Financial leasing has four commonly stated advantages for farmers over direct purchase of depreciable assets: (1) leasing may be less costly than purchasing, (2) leasing may be more feasible than purchasing from a cash flow perspective, (3) leasing frees up working capital, and (4) leasing simplifies tax accounting. In practice, the use of financial leasing can seldom, if ever, be justified by the third and fourth items. Therefore, our discussion will focus on the first two perceived advantages.

POTENTIAL COST ADVANTAGES AND CASH FLOW FEASIBILITY

When determining the potential cost advantage of leasing over purchasing, it is essential that costs and returns be measured on a comparable basis and that differences in tax payments and deductions be accounted for properly. The recommended method of making the comparison is through net present value analysis. The net present value of a depreciable asset can be determined by discounting all cash outflows back to the present. One should compare the net present value of the lease alternative with a purchase alternative. The one with the lowest net present value is preferred.



Consider the following example. A farmer has the alternatives of leasing a machine from a lender or of borrowing money and buying the machine directly. Assume the following facts:

1. An item worth \$50,000 is purchased by a lender. The item could be purchased outright by the farmer for the same price and with a 25 percent down payment.
2. The lender will lease the item to the farmer under a financial lease for five years, during which time five equal prepaid lease payments of \$10,500 are made. Under the terms of the lease, the farmer can buy the item for \$5,000 at the end of the lease period.
3. If money is borrowed to buy the item, the interest rate is 14 percent.
4. The item is depreciated under the Accelerated Cost Recovery System, or ACRS (15, 22, 21, 21, 21 percent). Depreciation is lowered by 50 percent of the investment credit claimed.
5. The investment tax credit is 10 percent (or \$5,000 in this example). If the machine is leased, the lender claims investment credit; if the item is purchased, the farmer claims investment credit.
6. An after-tax discount rate approximately equal to the after-tax cost of borrowing money (11 percent) is used for net present value calculations.

Comparisons of the net present value of cash outflows under the loan are shown in Table 1. Under the loan option, a 25 percent down payment is assumed; the remaining cost is financed with a five-year loan at 14 percent interest. The loan is amortized with 5 equal annual payments of \$10,923. As the owner of this machinery, the farmer has tax deductions of interest, depreciation, and investment credit. For our example, the farmer is assumed to be in a 32 percent marginal tax bracket. Tax savings are deducted from other cash outflows to arrive at the after-tax cash outflow. These after-tax cash outflows are then discounted back to the present to arrive at the net present value of cash outflows. In our example, the net present value of cash outflows for the loan option is \$33,016.

Table 2 shows the net present value of cash outflows under a farm financial lease that requires prepaid annual lease payments of \$10,500 per year and that has a buy-out option of \$5,000 at the end of the lease. By leasing the equipment, the farmer can no longer claim interest, depreciation, or investment credit on the item. However, lease payments are a tax-deductible expense. The tax savings generated by the lease payments are computed and subtracted from the cash outflows under the lease contract. These net after-tax cash flows are then discounted back to the present to arrive at the net present value of cash outflows. In our example, the net present value of cash outflows under the lease option is \$33,327, or \$311 more than under the loan option. Under these conditions, the farmer should prefer the loan alternative to the lease alternative in a net present value sense.

The results illustrated in Tables 1 and 2 are very sensitive to the marginal tax bracket of the farmer. The net present value of cash outflows under the loan and lease option for various marginal tax brackets are shown on the next page.

Marginal tax bracket	Net present value of cash outflows	
	Loan option	Lease option
16%	\$40,086	\$39,330
22%	\$37,845	\$37,038
32%	\$33,016	\$33,327
46%	\$27,847	\$29,583

Notice that at low tax brackets the lease option is preferred to the loan option, while at high tax brackets the loan is preferred over the lease. Consequently, leasing of machinery is more likely to be preferred by farmers with low taxable incomes.

The net present value procedure identified above is easily adaptable to micro-computer electronic spread sheets. Using this approach, farmers can examine numerous "what if" situations in evaluating lease versus purchase options. The net present value procedures can then be used to decide under what conditions a leasing program may be preferred to a loan program.

Cash flow feasibility of the lease versus purchase option can perhaps best be examined by comparing the net after-tax cash outflows for each. The loan option requires a \$12,500 down payment at the time of purchase, while the lease option requires only a \$10,500 prepaid lease payment. However, the subsequent after-tax cash outflows are higher for the lease option. A cash-strapped farmer who has a strong need for items may select the lease option over the loan on the grounds of short-term cash flow feasibility. Each individual must decide whether the net present value differences offset the differences in cash flow feasibility.

BREAKEVEN ANALYSIS

Another method of comparing lease versus purchase alternatives is to determine the "breakeven lease payment." The breakeven lease payment reflects the percentage of the acquisition price, which can be paid as an annual lease payment and leave the farmer indifferent in a net present value sense between leasing and purchasing the asset. Breakeven lease payments for a particular set of assumptions are shown in Table 3.

For example, the breakeven lease payment for a farmer with a 22 percent marginal tax rate and a 5-year lease is 21.34 percent. That means that if the annual lease payment is above 21.34 percent of the acquisition price, the farmer would be better off in a net present value sense by purchasing rather than leasing. If the annual lease payment is below 21.34 percent of the acquisition cost, the farmer would be better off in a net present value sense by leasing rather than purchasing.

The results shown in Table 3 are quite sensitive to the assumptions used. Because each farmer faces a unique set of financial circumstances, the decision to lease versus purchase needs to be evaluated on a case-by-case basis.



Table 1. Loan Analysis, 32 Percent Tax Bracket

A	B	C	D	E	F	G	H	I	J
End of year	Down payment and principal payment	Interest payment	Depreciation ^a (ACRS)	Investment credit	Tax deductions (C + D)	Tax savings (F x 0.32)+E	After-tax cash outflow (B + C - G)	Discount factor (@11%)	Net present value of cash outflows (I x H)
0	\$12,500						\$12,500	1.00000	\$12,500
1	5,673	\$5,250	\$ 7,125	\$5,000	\$12,375	\$8,960	1,963	.90090	1,768
2	6,467	4,456	10,450		14,906	4,770	6,153	.81162	4,994
3	7,373	3,550	9,975		13,525	4,328	6,595	.73119	4,822
4	8,405	2,518	9,975		12,493	3,998	6,925	.65873	4,562
5	9,582	1,341	9,975		11,316	3,621	7,302	.59845	4,370
							NET PRESENT VALUE		33,016

^aReduced by 50 percent of investment credit claimed.

Table 2. Farm Finance Lease Analysis, 32 Percent Tax Bracket

A	B	C	D	E	F	G
End of year	Lease payment	Purchase price	Tax savings (B x 0.32)	After-tax cash outflow (B + C - D)	Discount factor (11%)	Net present value of cash outflows (E x F)
0	\$10,500			\$10,500	1.00000	\$10,500
1	10,500		\$3,360	7,140	.90090	6,432
2	10,500		3,360	7,140	.81162	5,794
3	10,500		3,360	7,140	.73119	5,221
4	10,500		3,360	7,140	.65873	4,703
5	0	\$5,000	3,360	7,140	.59345	677
					NET PRESENT VALUE	33,327

Table 3. Breakeven Lease Payments as a Percentage of Acquisition Price

ASSUMPTIONS:

- Interest rate on loans is 15 percent.
- Buy-out is at 10 percent of original cost.
- Discount rate equals after-tax cost of borrowing.
- Lease and loan are for the same length of time.

Marginal tax rate of lessee	Breakeven lease payments		
	3-year lease	5-year lease	7-year lease
0%	35.58%	24.64%	19.37%
22%	30.67%	21.34%	18.14%
32%	29.62%	20.65%	16.40%

David A. Lins

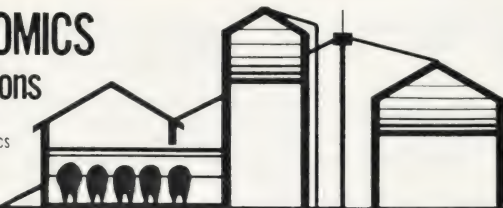
David A. Lins
Extension Specialist
Farm Financial Management



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



September, 1984

84-12/Illinois Farm Property Tax Assessments for 1985

In 1982 economic stress began to push the taxable value of Illinois farmland down. When data from 1978 through 1982 were used to compute 1984 assessments following the use-value formula, assessment levels were found to be about 25 percent lower than in 1983. Lower assessments in 1984 mean lower tax receipts in 1985. This situation raised concern for the financial health of rural schools and caused legislation to be passed in June of 1984 to slow the decline in farmland assessments. Beginning in 1984, the assessed valuation on farmland in a county cannot change by more than 10 percent.

1985 USE-VALUE ASSESSMENTS

The impact of the limitation law on farm property taxes is uncertain. However, the use-value assessments for 1985 recently released by the Illinois Department of Revenue suggest that the limit law's impact maybe short-lived. The somewhat stronger economic conditions in Illinois agriculture in 1983, which are reflected in 1985 farmland assessments, helped reverse a three-year decline in assessments. All types of land, however, did not experience the same degree of economic recovery. From 1984 to 1985 assessments on better-quality soils increased and assessments on poorer-quality soils decreased, although at a reduced rate.

The index of assessed values in Figure 1 illustrates the trend in farmland assessments. The value on poorer soils declined more rapidly than the value on better soils from 1982 to 1984. Values on poorer soils will continue to decline slightly from 1984 to 1985 (-2.4 percent), while the values on better soils will increase (+8.0 percent).

The link between agricultural economic conditions and farmland assessments can be identified by examining each of the factors that enter the calculation of farmland use-value assessments. The main economic forces influencing farm assessments are (1) the corn and soybean prices received by Illinois farmers during the five-year data period (2) five-year average nonland production costs, and (3) the five-year average effective Federal Land Bank (FLB) mortgage interest rate on new farmland loans that is used as a capitalization factor. In general, lower prices, higher production costs, and higher FLB interest rates push farmland assessments down. Figure 2 traces the five-year average prices for corn and soybeans through assessment year 1985, with estimates for 1986. The strengthening of these average prices for 1985 assessments contributed to the reversal of the downward trend in farmland assessments.

Figure 3 traces the average nonland production costs through assessment year 1985. The drop in the rate of growth in costs also helped strengthen 1985 assessed values.

The accelerated growth in costs for poor soils beginning in 1983 explains to some extent why assessments on poor soils declined more rapidly and failed to recover in 1985 compared to assessments on Illinois's better soils.

A major cause for robust 1985 farmland assessments is the significant drop in the growth rate of the FLB interest rate. Figure 4 traces these rates through assessment year 1985. Between 1983 and 1984, this rate grew by 13 percent to 11.71 percent. The 1985 rate of 11.93 percent represents an increase of less than 2 percent from the rate used for 1984 assessments.

Less inflationary pressure on nonland production costs and on the FLB interest rate, as well as stronger commodity prices, will strengthen the Illinois farmland property tax base. The fiscal pressure of lower taxable values brought about legislative action that protected rural school and other local government tax bases. The strength of the rural property tax base beyond 1985 will depend directly on the economic health of Illinois agriculture.

IMPACT OF THE LIMIT LAW

Sorting out the impact of the 1984 law that limits year-to-year changes in farmland assessments for any county to 10 percent from the previous year is not easy. In general, the limit law will allow more tax revenues to be collected in 1985 and possibly in 1986 than would have otherwise been possible without increased tax rates. However, the impact of the law will vary from county to county because of variation in soil quality and assessment practices.

Map 1 presents per-acre average farmland assessments by county for 1983 (actual reported averages), for 1984 considering the limit law, and for 1985 considering the limit law and the strengthened 1985 use-values. Of course, assessments in 1983, 1984, and 1985 are the bases for taxes paid in 1984, 1985, and 1986, respectively. The limit law restricted the decline in farmland assessments to 10 percent in 84 Illinois counties between assessment years 1983 and 1984. Farmland assessments in 5 counties were prevented from increasing by more than 10 percent by the limit law. Without the limit law, the average 1984 assessment across Illinois counties should have been around \$155 per acre. With the limit law, a 1984 average of approximately \$185 per acre is expected.

For 1985 assessments, only 44 counties are expected to have higher average assessments because of the limit law; assessments in 6 counties will be held to a 10 percent increase from 1984 to 1985 by the law. In general, the stronger 1985 use-value assessments for better-quality soils resulted in assessment changes of less than 10 percent between 1984 and 1985 throughout most of central Illinois. The continued decline in use-value assessments for the poorer Illinois soils caused expected 1985 average assessments in most of the southern Illinois counties to be higher because of the limit law. About 29 of the 44 counties whose 1985 expected average assessments are higher because of the limit law are in the southern part of the state. Generally, southern Illinois soils are of poor quality, so the combined impact of the limit law and 1985 use-value assessments is not unexpected.

SUMMARY

Concern for the budgets of rural school districts resulted in limits being placed on the change in county farmland assessments. This policy action was triggered by the dramatic decline in assessments on farmland caused by the weak economic conditions in agriculture in 1981 and 1982. The 1984 limit law stabilized the tax base of rural governments. Because economic stress has been more severe on lands with

poorer soils, the limit law will constrain assessment declines in southern Illinois counties in 1985 (taxes payable in 1986) but will not affect the level of 1985 assessments in most northern Illinois counties. The strength of the rural property tax base supporting rural schools and other local services beyond 1985 in most counties will depend directly on the economic health of agriculture in Illinois.

David L. Chicoine

David L. Chicoine
Extension Economist
Natural Resource Economics
and Public Policy

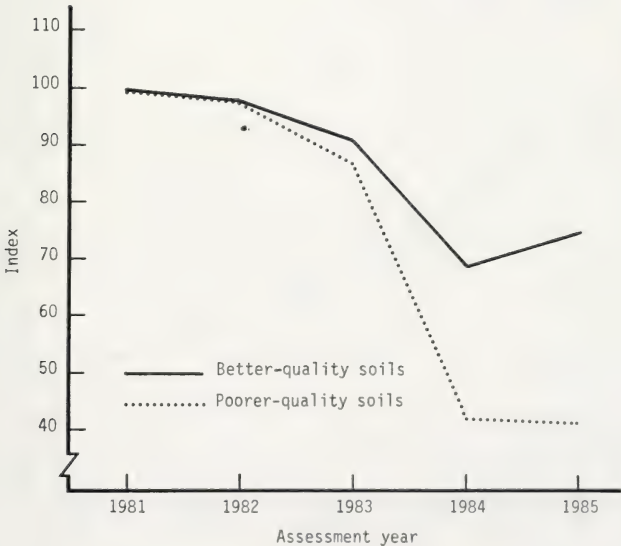


Figure 1. Index of farmland assessed values, 1981-1985.

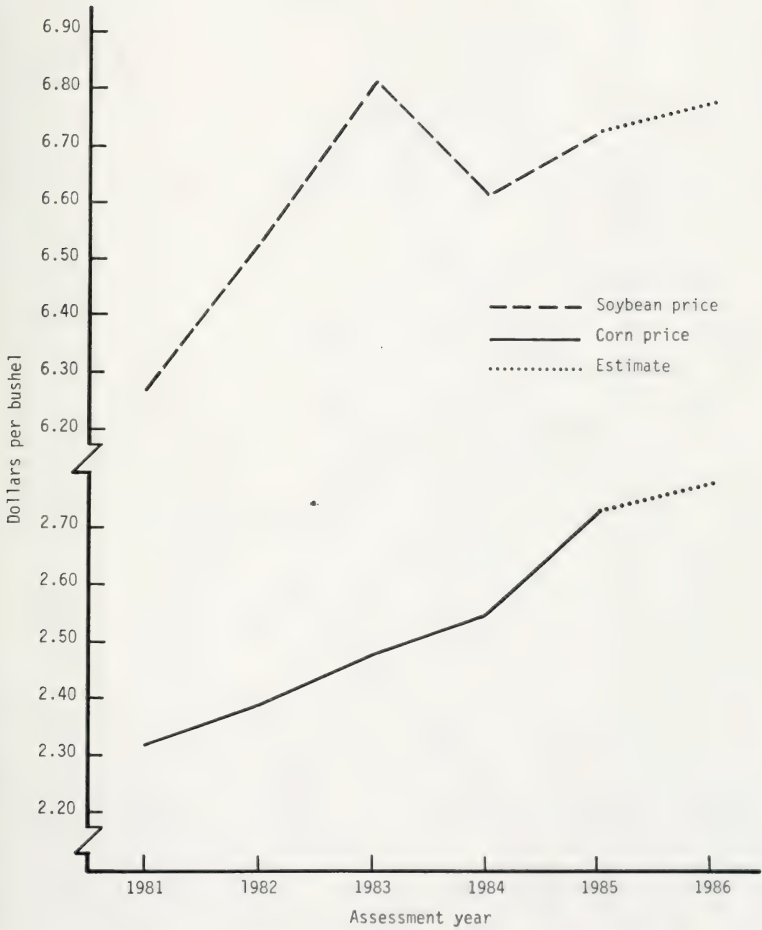


Figure 2. Average prices, assessment years 1981-1985, with 1986 estimate.

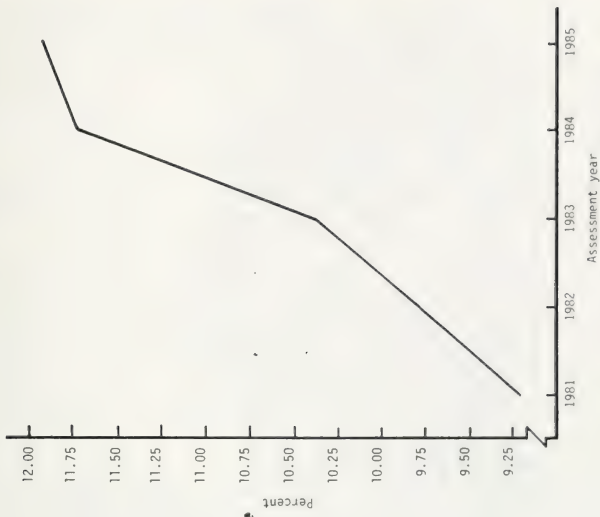


Figure 4. Capitalization rate, assessment years 1981-1985.

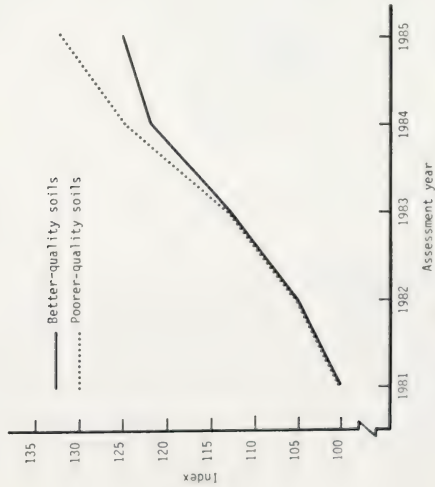
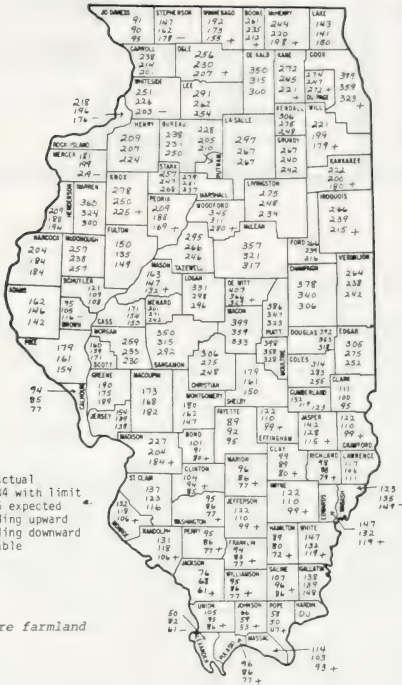


Figure 3. Index of nonland grain production expenses.



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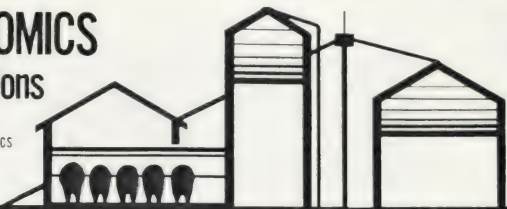
8-13-1984



FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



October, 1984

84-13/Two Decades of Change in Illinois Agriculture

Illinois is one of the most urbanized states in the nation; at the same time it is among the top states in the number of people living on farms. Over the past two decades, the rural population has experienced dramatic changes, as have the number and types of farms dotting the countryside. This report presents some highlights on the types of changes that have occurred in rural Illinois, with particular emphasis on what has been happening to the number and distribution of farms of different sizes.

RESIDENTIAL DISTRIBUTION OF POPULATION

Table 1 shows residential distribution trends in the state and the nation over the past thirty years. In every period shown in the table, Illinois was more urbanized than the nation as a whole. Despite the large number of farms in the state, farm people have represented a very small portion of the population. During the past three decades, farm people have never constituted even 10 percent of the state's population. Currently, the Illinois farm population is at a historic low of 2.8 percent, which is roughly equivalent to the national percentage. In rural areas, nonfarm people greatly outnumber farm people. With recent growth trends in rural portions of the state, farm residents are beginning to represent an even smaller fraction of the rural population.

FARM NUMBERS AND SIZES

Over the past three decades, Illinois farmlands have decreased by 1.4 million acres, while average farm size has increased from 196 to 292 acres. Between 1959 and 1982, Illinois lost about 56,000 farms, an average of more than 200 a month for this entire period. Although the national trend has shown some slight variations, losses have been more pronounced in some periods than in others. The Illinois trend reflects national trends of the last fifty years. In the Midwest the number of farms peaked in 1930, and since then half have disappeared.

Distribution of Farms by Size

The decline in the number of farms has not affected different size classes equally. Table 2 presents data that show the decrease in Illinois farms from 1959 to 1982 and the different farm size categories in which the changes have occurred. The number of Illinois farms of less than 500 acres has declined since 1959. At the same time, only 68 percent of the farms under 100 acres were present in 1982, and more than 60 percent of those in the 100- to 250-acre category have disappeared. The number of farms of 500 acres and more has increased substantially, and those over 1,000 acres have increased by 61 percent since 1959. Overall, the number of farms in 1982 was only about two-thirds what it was a little over 20 years ago. Still, the largest farms represent only a small portion of the total number of farms, and more than 60 percent in Illinois are under 260 acres. One-third are under 100 acres. Illinois remains a state composed of relatively small farms.

The shift in the number of smaller farms to larger ones becomes even more impressive in light of the fact that the impact of large farms has been conservatively estimated. Although smaller farms (under 260 acres) constitute a sizeable percentage of the number of all farms, they account for only about 21 percent of the land in farms (Figure 11). In 1959 these farms accounted for close to half of the state's farmland. At the other extreme, large farms (over 1,000 acres) account for less than 5 percent of the state's farms, but they occupy 20 percent of all farmland: almost as much as is occupied by all of the nearly 60,000 farms with under 260 acres. The growth in number of the largest farms is thus a very significant phenomenon in Illinois.

Concentration of Farming

Thirty years ago slightly more than 6,000 large farms consisted of more than 500 acres each; today almost 18,000 such farms are carved out of a much smaller land area. Although the number of small farms under 100 acres has decreased over the past two decades, they have simultaneously increased as a proportion of all farms. Small farms now represent about one-third of all farms. Research done at the University of Illinois at Urbana-Champaign shows that while small farms under 50 acres contribute relatively little to total agricultural output, they are a preferred place to live and the setting for a lifestyle that attracts many people.

Reasons for the Changes

The changing structure of agriculture can be attributed to many factors, the main ones being technology, market forces, and employment opportunities. None can be considered alone as sufficient cause, but all of them have contributed to the transformation of agriculture.

The replacement of human and animal labor by mechanical power was a great shift in U.S. agriculture, allowing existing acreage to be worked by many fewer hands than before. Without mechanization, larger acreages per unit of farm labor would not have been possible without a simultaneous loss in production.

In addition to mechanization, the use of fertilizers, pesticides, and better management have also increased production. Over the time period discussed in this paper, the output of U.S. agriculture has grown significantly. For much of the same time, rapidly increasing output has been accompanied by insufficient demand. Consequently, the benefits of increased agricultural production have accrued to the consumer in the form of lower prices; input suppliers have also benefited to some extent and to a smaller degree, the agricultural producers as well.

To deal with low incomes, farmers have followed two courses of action: many farmers have withdrawn their labor from agriculture, either partially or by abandoning agriculture entirely; or they have sought employment off the farm, decreasing their farm work hours (and possibly their leisure hours as well). These farmers no longer depend on agricultural enterprise to provide a family income comparable to those in the remainder of the economy.

Other farmers have attempted to enhance their family incomes by increasing the total size of their operations. If one cannot increase the dollar return per acre, one can attempt to increase the number of acres from which a return is gathered.

FUTURE TRENDS

The combination of technology and market forces has thus created two complementary forces in U.S. agriculture: the drive towards larger farms (and thus fewer farm units) and the drive towards nonfarm income or part-time farming. The trend toward larger units is likely to continue because the technology is in place. Although no spectacular breakthroughs are envisioned in farm mechanization, the current state of mechanical technology strongly suggests further movement toward larger units. While these future developments may not necessarily be in the direction of larger and larger units, continuous pressure will be exercised on that front. That movement will most likely involve

the growth of more units into the currently existing large size (1,000 or more acres). To go beyond that size will require technological and management innovations; to bring more farms up to the 1,000-acre size will depend on the application of existing technology and management skills.

The growth in small-scale, part-time farming is a direct function of locally available off-farm employment opportunities. Research in Illinois indicates that most small-scale farm operators hold off-farm jobs with relatively middle-level wages. Few small-scale operators belong to the professional class, and virtually none can be classified as poor. Many but not all of the spouses are employed off the farm. Almost all have purchased their current farms rather than inheriting them, and they moved onto these farms as young adults. The move to combine off-farm employment with small-scale farming was a deliberate and voluntary move.

Continued growth in small-scale farming is likely to be part and parcel of increased off-farm employment in rural areas. Growth of the service sector in rural areas and the continued movement of manufacturing and other economic activities to rural areas will have a strong impact on the magnitude of this trend.

Another continuing trend is the gradual disappearance of the middle-sized farm. While off-farm employment has provided many families on medium-sized farms with opportunities to supplement their farm incomes, the combination of off-farm and farm income has been less than optimal in most circumstances.

The middle-sized farm places enough managerial, labor, and capital demands on the farm family to make it difficult to combine it with off-farm employment. Middle-sized farms thus continue to decrease in numbers, as larger units multiply and occupy more and more of the farmland. At least in the near future, small-scale farms will attract a growing class of farm operators in areas where off-farm employment is available to supplement farm income.

Prepared by A.J. Sofranko and J.C. VanEs



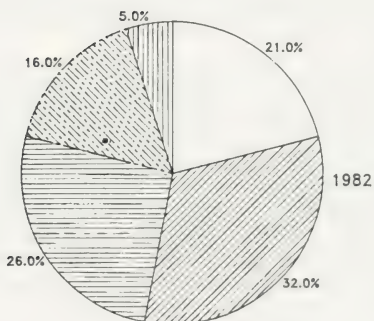
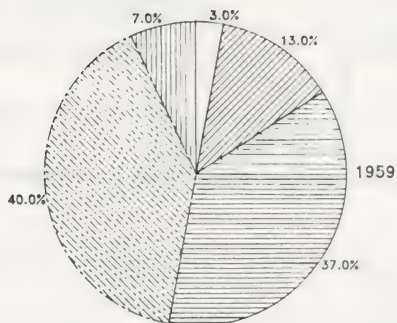
Issued by Richard P. Kesler, Extension Specialist, Farm Management

Table 1. Comparison of Residential Distribution in the United States and Illinois, 1950 to 1980

Year	United States			Illinois		
	Urban	Rural		Urban	Rural	
		Farm	Nonfarm		Farm	Nonfarm
			Percent			
1950	64.0	15.3	20.7	78.6	8.2	13.2
1960	69.9	7.5	22.6	80.7	5.6	13.7
1970	73.5	4.1	22.4	83.1	3.8	13.1
1980	74.0	2.1	23.6	83.3	2.8	13.9

Table 2. Number and Distribution of Farms in Illinois, 1959 and 1980

Farm size	1959		1982		Percentage of change, 1959 to 1982
	Number	Percentage	Number	Percentage	
1,000 acres and more	574	.3	4,082	4	+611
500 to 999 acres	5,616	3.6	13,881	14	+147
260 to 499 acres	32,689	21.1	20,674	21	-37
100 to 259 acres	66,773	43.4	26,274	27	-61
Less than 100 acres	48,992	32	33,572	34	-31
Total	154,644	100	98,483	100	-36



1,000 AND OVER
 260 TO 499 ACRES
 LESS THAN 100 ACRES

500 TO 999 ACRES
 100 TO 259 ACRES

Figure 1. Percentage of farmland in different farm size categories, 1959 and 1982.

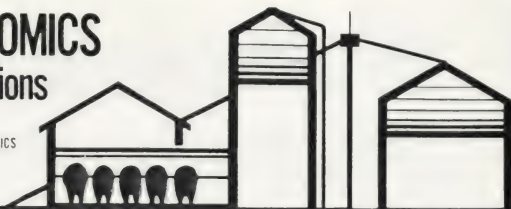


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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



October, 1984

84-14/Income Insurance for Commodity Producers

In the 1981 Farm Bill, Congress directed the Secretary of Agriculture to establish a task force to investigate the concept of income insurance in order to determine its feasibility as a substitute for existing commodity support programs. The escalating cost of these traditional programs and the concern over their apparently diminishing effectiveness have sparked interest in the idea of income insurance.

Proponents of income insurance have argued that it may be used to accomplish the same objectives addressed by existing programs but at a lower cost to the federal government and with less government involvement in the day-to-day decisions of commodity producers. Under income insurance, a producer would receive payment if his income fell below the stipulated insured level, whether the shortfall was caused by low prices, low yields, or both. Income insurance would require producers to share at least part of the premium costs that could reduce government outlays for farm programs. In contrast, current support programs provide protection against declines in yield (through crop insurance) and price (through loan and deficiency payments) without explicit coordination to meet an income goal. Thus, income insurance would directly address the issue of farm income maintenance and stabilization.

INCOME INSURANCE TASK FORCE

The Task Force on Farm Income Protection Insurance included representatives from commodity and general farm organizations, the private insurance industry, the Federal Crop Insurance Corporation, USDA's Agricultural Stabilization and Conservation Service, academia, and the Secretary of Agriculture, as well as two full-time farmers. The task force was charged with analyzing the characteristics and feasibility of a farm income-insurance program and the appropriate roles of the private insurance industry and the federal government in developing, implementing, and administering such a program. In addition, the alternative mechanisms and costs of insurance, as well as acceptability to farmers, were to be explored.

After eight months of deliberation, the task force concluded that important questions about the design, feasibility, and implementation of an income-insurance program remained to be resolved. Accordingly, it recommended the initiation of a pilot program intended to provide information on the operational aspects and feasibility of income insurance. The substitution of income insurance for all federal agricultural support programs was not deemed advisable at present. The task force also stressed the importance of increasing participation in multiple

peril crop insurance as a necessary antecedent to the establishment of a successful program that insures both yield and income. The findings of this task force are documented in a USDA publication, *Farm Income Protection Insurance; A Report to the U.S. Congress*.

Based on the work done for the task force, this report considers how income insurance might operate and the implications of its substitution for existing commodity support programs.

HOW INCOME INSURANCE MIGHT WORK

Under the task force definition, insurable income would be equal to some portion of the gross revenue derived from the sale of a given commodity. The level of guarantee could be applied to a historical standard; so, for example, 75 percent of the past three year's average revenue could be guaranteed. For producers who derive the bulk of their income from the marketing of an insured commodity, the program could provide substantial protection against catastrophic income declines. In this context, income insurance is not intended to cope with variation in off-farm income. The task force stressed that income insurance should not represent a guarantee of profit for a producer but a protection against relatively large falls in operating revenue.

Income insurance could be designed to work on total revenue directly, so that payments would be received any time it fell below the designated level. This design would not distinguish between the source of the deficit in yield declines, price declines, or both. However, with multiple peril crop insurance already in place for many commodities, the task force felt that income insurance could be added as an endorsement to the existing yield protection scheme. In that case, a producer would receive payment if yield were below the guarantee level. If actual yield multiplied by market price, plus the yield payments, were below the guaranteed level of revenue, an insurance payment would also be made to cover the difference.

Because of the likelihood that many producers of a particular commodity could suffer losses in a single year, the federal government would likely maintain involvement in such an expanded insurance program. Private insuring agencies might purchase reinsurance from the federal government as a backstop against catastrophic losses. The government might also choose to subsidize premium payments, as it has with multiple peril crop insurance. Since extensive data on producers' marketing opportunities would be required for the expanded coverage, the government might assist in its collection and verification. The task force did not directly address the issue of the status of federal supply controls under income insurance. Presumably, acreage restrictions and set asides could be determined in collaboration with private insuring agencies and placed as a condition on participation in the insurance program.

INCOME INSURANCE AS A SUBSTITUTE FOR CURRENT PROGRAMS

Assessing the feasibility of substituting income insurance for existing commodity programs involves a consideration of the impacts of its adoption. The subsidized farmer-owned reserve, price supports, and deficiency payments are the main tools of contemporary federal commodity policies. The main effect of these programs is to stabilize prices, and thus they relate indirectly to income stabilization. In contrast, insurance would explicitly identify income from commodity production as its target variable. Because it makes no provision for direct government

intervention in markets to influence price, the adoption of income insurance would force the issue of whether commodity programs are meant to stabilize producers' incomes around market trends or maintain them at a level above that which would be dictated by market forces.

Because income insurance would work to guarantee some level of income relative to a historical standard, its effect would be to stabilize absolute income levels around market determined trends. Suppose that, as in the past, advances in technology act to increase commodity supply, causing price to fall (as it would under income insurance in the absence of a loan rate price floor). If demand is unresponsive to changes in price, incomes would be stabilized around a declining absolute trend. Maintaining income above that trend would become increasingly expensive in terms of premium costs. On the other hand, if demand is responsive to changes in price, incomes may be stabilized around an upward trend. This suggests that income insurance would be most effective at stabilizing income around market determined trends. If the goal is to maintain producers' returns above those dictated by the market, direct income transfers that are not based on insurance principles might be more efficient.

In the absence of traditional programs, commodity prices might be expected to fall and also to be more variable than in the past. Income insurance would provide producers with a means to manage these risks. However, abandonment of the traditional forms of loan rate and supply control measures would pose significant adjustment problems for the agricultural sector. Impacts might be expected to vary across commodities. For some, more freely determined market prices might open new opportunities, especially in the export sector. For others, insurance guarantees might be insufficient and force some producers out of operation. The political acceptability of the substitution of income insurance for existing programs may ultimately depend on these differences.

Prepared by Susan E. Offutt, Assistant Professor, Agricultural Economics

Richard P. Kesler

Issued by Richard P. Kesler, Extension Specialist, Farm Management

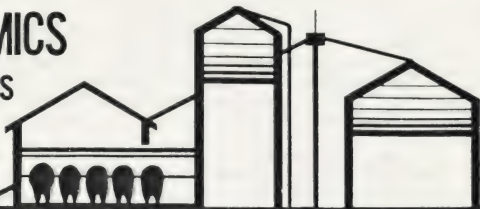


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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



November, 1984

84-15/Land Price Decline in the Cornbelt Continues!

We have been asked to cooperate with USDA to try to get a better reading on what farmland prices are doing. In preparing for a periodic survey on land values, we mailed out questionnaires to a large group of professionals who are directly active in the land market. We drew our sample using several different professional directories. The two most important were the American Society of Farm Managers and Rural Appraisers and The Farm Land Institute, which consists of members of the National Realtors Association who specialize in farmland appraisal, listing, and sales. In some areas, to get better geographic coverage we included some real estate tax assessors who also monitor farmland prices in their work.

We have summarized the responses to this survey by states. The following Table gives averages for each cell for each state except for the range in values, which is the total range reported. The number of responses varied from one cell to another since not all respondents felt they had sufficient data to answer some of the questions. Many indicated that the number of sales in their areas was not great enough to give very precise answers. Some felt a breakdown of quality of cropland might be more relevant, but some would have even less data to answer a quality-of-land breakdown. Responses on woodland were less in number, and values of woodland were determined mainly by location relative to metro areas.

Most respondents expect a smaller decline in values in the next 12 months than they perceived occurring over the last 12 months.

A few commented that they thought we were at or approaching the bottom in land prices, while others, especially in the Western Cornbelt, believe the bottom is yet to come. In some areas there has been a significant increase in the amount of land coming on the market, especially in Iowa, with much of it unsold. It does not take much of an increase in supply of land by serious sellers to impact the market because the normal turnover rate of farmland in the Cornbelt over the last 20 years has been quite low--with parcels actually selling in the market on the average about once every 20 to 30 years.

We are seeing some support of land prices indirectly, on the supply side, by lending institutions which tell borrowers not to sell below a given price or are holding land they have taken over on loans rather than putting it on the market. Insurance companies (among commercial lenders) are in the best position to do this because they generally have a more widely diversified investment portfolio and

their farmland loans are a small fraction of their total investments. The Farmers' Home Administration is also in a good position to do this so long as the political support for that policy continues. At the present time, about 25 percent of their loans are delinquent, and considerable restructuring of these loans is taking place. Local commercial banks in rural areas probably have the least capability to do this because it may represent a larger share of their investment portfolio and because of existing banking regulations.

We thank those who responded to our survey; the strong response gives us confidence that we can develop an excellent panel of experts who are willing to provide periodic information on the land market.

Prepared by John T. Scott, Jr., Professor and Extension Specialist in Land Economics.

A handwritten signature in cursive script, reading "R. P. Kesler".

Issued by R. P. Kesler, Extension Specialist, Farm Management

Table of Average Values from Respondents by States
from Land Value Questionnaire - October, 1984

Type of land		Current average value	Current range in value		Percent change in value		Percent change in supply of land on the market last 12 months
			High	Low	Last 12 months	Expected in next 12 months	
		-----\$ per acre-----			+ or -	Percent	
OHIO	Cropland	1,516	3,500	800	-7%	-1%	+15%
	Woodland	854	5,000	200	-2%	-1%	+6%
		-----\$ per acre-----			+ or -	Percent	
INDIANA	Cropland	1,681	2,900	625	-8%	-4%	+8%
	Woodland	604	2,500	100	-5%	-2%	+5%
		-----\$ per acre-----			+ or -	Percent	
ILLINOIS	Cropland	1,992	4,000	250	-10%	-3%	+19%
	Woodland	823	6,000	100	-10%	-2%	+9%
		-----\$ per acre-----			+ or -	Percent	
IOWA	Cropland	1,647	3,000	600	-22%	-4%	+45%
	Woodland	475	1,700	100	-11%	-3%	+28%

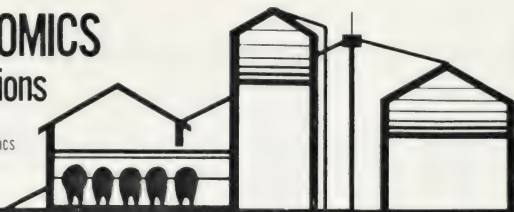


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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



December 3, 1984

84-16/Self-Employment Tax Impact and Planning Opportunities

Generally, the Social Security Tax Act of 1982 increases the rate of the Social Security and self-employment taxes. There are, however, some planning opportunities to reduce the increasing burden of these taxes.

The Social Security tax impact is shown in Table 1.

Table 1. Social Security Rates for Employers and Employees

Year	Old Age, Survivors and Disability Insurance	Hospital Insurance	Combined	Combined Employer and Employee
1984	5.70%	1.30%	7.00%	14.00%
1985	5.70	1.35	7.05	14.10
1986	5.70	1.45	7.15	14.30
1987	5.70	1.45	7.15	14.30
1988	6.06	1.45	7.51	15.02
1989	6.06	1.45	7.51	15.02
1990 & later	6.20	1.45	7.65	15.30

REFUNDABLE CREDIT

For 1984, the effective rate for employees after a credit equal to 0.3 percent of the compensation subject to Social Security is 6.7 percent. The combined rate is therefore 13.7 percent for 1984. Note that instead of requiring an application for refund, the credit is reflected in the withholding tables.

WAGE BASE

For 1984, \$37,800 is the wage base—the income subject to Social Security tax. This wage base will be recalculated in the future to reflect the increase in the consumer price index. The wage base applies both to employees and to self-employed individuals. (The 1983 wage base was \$35,700.)

Table 2 shows the rates for self-employed individuals. 1984 and later years' rates for self-employed individuals have been increased (from the 1983 combined rate of 9.35 percent) to equal the combined employer and employee Social Security contributions. The increase is partially offset by a credit against the tax. The new rate structure is illustrated in Table 2.

Table 2.

Taxable Year Begin- ning in	Old Age, Survivors and	Hospital Insurance	Combined	Credit	Tax on \$37,800 Before	Credit	After Credit
	Disability Insurance				Credit		
1984	11.40%	2.60 %	14.0 %	2.7%	\$5292	\$1021	\$4271
1985	11.40	2.270	14.1	2.3	5330	869	4461
1986-87	11.40	2.90	14.3	2.0	5405	756	4649
1988-89	12.12	2.90	15.02	2.0	5678	756	4922
1990 & later	12.40	2.90	15.30	See below	5783	See below	

Credit—1984 2.7 percent of self-employment income up to maximum base
 1985 2.3 percent of self-employment income up to maximum base
 1986-1989 2 percent of self-employment income up to maximum base
 1990 and later years: Self-employed persons will be allowed a deduction (attributable to a trade or business) of one-half of the self-employment taxes paid. Alternatively, they may deduct from self-employment earnings an amount equal to 7.65 percent of net earnings from self-employment.

Illustration of Impact

Maximum self-employment tax 1983 = \$3,378

Maximum self-employment tax 1984* = 4,271

Actual maximum increase = \$ 893

THE SELF-EMPLOYMENT TAX

The self-employment tax is generally computed on the net earnings of a trade or business. For farmers this is the net profit shown on the bottom line of the tax form, Schedule F. The tax, for 1984, is computed on the first \$37,800 of net earnings from the trade or business.

MATERIAL PARTICIPATION

In order to be liable for self-employment tax the owner of the business must actually be operating the business or must be "materially participating" in the management of the trade or business. The *Farmer's Tax Guide* (IRS Publication 225) explains the four tests for material participation of a *farm landlord* as follows:

You are materially participating if you have an arrangement with your tenant for your participation and you meet one of the four following tests:

Test No. 1 You do any three of the following: (1) advance, pay or stand good for at least half the direct costs of producing the crop; (2) furnish at least half the tools, equipment, and livestock used in producing the crop; (3) consult with your tenant; and (4) inspect the production activities periodically.

Test No. 2 You regularly and frequently make, or take an important part in making management decisions substantially contributing to or affecting the success of the enterprise.

Test No. 3 You work 100 hours or more spread over a period of five weeks or more in activities connected with crop production.

Test No. 4 You do things that, considered in their total effect, show that you are materially and significantly involved in the production of the farm commodities. These tests may be used as general guidelines for determining whether you are materially participating. For further information, contact your Social Security office. Doubtful cases may be submitted to the District Director of Internal Revenue for advice.

NONMATERIAL PARTICIPATION

If a landowner or livestock owner does not materially participate in the farm business, the landowner's or livestock owner's share of the livestock or crop income should be reported on Form 4835 in the year they are converted to money or its equivalent. The landowner's share of expenses are also reported on Form 4835. The net rent is then reported on Schedule E (Form 1040). Consequently, the non-material participation crop or livestock share income has the same effect as cash rent. It is not treated as self-employment income.

PLANNING OPPORTUNITIES TO MINIMIZE SELF-EMPLOYMENT TAX

There are several tools presently available to moderate the impact of increasing self-employment taxes. It should be clearly understood that the decision to utilize these tools needs to be made carefully. Each taxpayer will be affected somewhat differently. A reduction in tax paid may have an important impact on Social Security benefits later received. The need to protect survivors and dependents under the system may also be a significant factor—especially for younger taxpayers. Working with local Social Security offices may enable the planner to estimate the financial impact of a decision to reduce the tax.

"WAGE PAYMENT TO SPOUSE OR CHILDREN"

If the person is a sole proprietor (not a corporation and not a partnership unless the partnership is solely owned by mother and father), wages paid to a spouse, or to a son or daughter under age 21 at the end of the calendar year, are not subject to Social Security taxes.

The wages paid have to be reasonable for the services performed, and the services must be actually performed and detailed work and payment records kept.

Many farm wives provide labor for the business but are not paid a wage. The following example shows the effect on the husband's self-employment tax of a wage paid to the wife for services to the business.

Example 1.

Net farming or ranching income before payment	\$25,000
Self-employment tax before payment	2,825
Salary wife at \$6,000	
Net farm income after payment of salary to wife	19,000
Self-employment tax after payment	2,147
Self-employment tax savings =	\$ 678

The payment to the wife does not directly save any income taxes because the \$6,000 would be included as income on a joint tax return. It should be reported on a W-2 as non-Social Security tax wages. However, the \$6,000 wage in this example does

qualify for an IRA retirement contribution by the spouse and therefore up to \$2,000 of the payment can be sheltered from income tax until paid out at retirement. This income will not qualify for the two-earner married couple deduction on Schedule W, but will qualify as earned income for the childcare credit.

A payment to a child does provide potential income tax savings because the parents' taxable income is reduced by that amount and generally the child will pay tax on the wage at a lower rate than the parents. The wage payment to the child would reduce the net farm income and would have an impact similar to that shown in Example 1 above.

NON-CASH PAYMENTS TO EMPLOYEES

Social Security tax does not have to be paid on payments that are other than in cash for agricultural labor. So wage payments to agricultural labor in grain or livestock are not subject to Social Security tax. This technique could be used for children who are working on the farm but are over age 21 or for other agricultural labor if the goal is to reduce Social Security tax liability.

When payments are made in kind and not in cash the following conditions should be met.

1. Physical possession of the grain or livestock should be given to the employee rather than through a paper transaction.
2. Pre-arranged sales for employees' products with those of the employer should be avoided.
3. The employees should be instructed to decide the time, place, and terms of the sale rather than simply adding them to the employer's marketing activity. (Revenue Ruling 79-207)

In summary, the employee should be given complete possession and control, and the sale or other disposition of the "in kind" payment should be at the discretion of the employee and independent of that of the employer.

DIVISION OF INCOME BETWEEN SPOUSES

Husbands and wives frequently own land individually or as joint tenants or tenants in common yet all the land is operated as one unit. Generally, the income from this unit is reported on one Schedule F and the husband pays self-employment tax on the entire net amount.

If the wife is not materially participating in the operation, her share of the income (landowner's share) is generally not subject to self-employment tax and should be reported on another schedule (Form 4835). This division has the potential of reducing self-employment tax. For example:

Husband and wife own 200 acres as tenants in common. The wife does not materially participate in the business. The net income for 1984 is \$20,000. If the wife reports her landlord's share on Form 4835 (assume this is \$5,000), this would result in a \$5,000 reduction in her husband's net income subject to self-employment tax. A \$5,000 reduction in self-employment income for the husband creates a \$565 savings in his self-employment tax.

If the wife is materially participating in the operation, then her share of the income and expenses would be reported on a separate Schedule F and she would be liable for self-employment tax on the net profit. This could result in increased

combined Social Security taxes if the husband is at or near the maximum base—or in a reduced pay-in for the husband with a resulting reduction in benefits. It does, however, independently increase the wife's contributions and qualifications for benefits.

Historical Treatment. The way in which the wife's share has been historically treated may affect the decision of the planner. Has the income been previously allocated between spouses? Has there been material participation by the spouse? How difficult will it be to accurately reflect income and expenses based on property ownership? What are the tax implications for purposes of NOL's, investment tax credit, retirement plan contributions, etc.?

Paying a wage to a spouse where that spouse owns the property. An interesting conflict is created when the spouse is being paid a wage for work on property he or she owns. It seems likely that if there is labor of 100 hours or more spread over at least five weeks, the employee (owner) is materially participating as to the income from the employee's property.

ALTERNATE BUSINESS STRUCTURES

Converting a sole proprietorship to a partnership or corporation will have an impact on the tools and tax implications previously discussed.

Social Security tax exemption for spouse and children under age 21. Generally, when a sole proprietorship is changed to a corporation or partnership, the payment of a salary to a spouse or children under 21 will create Social Security tax liability just as though they were unrelated employees. This is because the entity (the corporation or partnership) is paying the salary and not the related party as an individual.

Corporate employees. Also, the former self-employed person is now an employee of the corporation and subject to Social Security tax. The Social Security tax rate for 1984 is 13.7 percent when compared to the self-employment rate of 11.3 percent. However, the corporate one-half of the payment is deductible from its income for tax purposes. For example, if a self-employed person had a net income of \$20,000 from a business and wanted to compare the cost if he or she incorporated as a C corporation (regularly taxed) and was paid a \$20,000 salary, the tax difference would be as shown below:

<i>Self employed</i>	<i>Employee</i>
20,000	20,000
X 11.3%	X 13.7%
\$2,260 net self-employment tax cost	\$2,740 Social Security tax
	(210) value of corporate deduction at 15% tax rate
	\$2,530 net cost

Reasonable compensation. A major issue when the business organization is a corporation is whether or not a stockholder who is an employee is being paid "reasonable compensation" for his or her labor and management. If the salary is below what would be reasonable compensation, the IRS has the authority to adjust the compensation amount to achieve a reasonable compensation level. Determining reasonable compensation in a farm corporation is difficult because of the lack of comparables that exist in other businesses that are incorporated. This is of special concern in an S corporation.

RETIREMENT AND SOCIAL SECURITY BENEFITS

Loss of benefits and taxation of benefits. If it is not the taxpayer's first year of retirement (the rules are somewhat different in that year) and he or she is age 65 but under 70, he or she can earn up to \$6,960 in wage or business income in 1984 without losing Social Security benefits. Income that is classified as passive income, like interest, rent, dividends, and farm or ranch income, where the taxpayer is not the operator and is not materially participating in management, does not count toward the \$6,960 limit. For every dollar of income over \$6,960 the taxpayer earns through wages or active involvement in a trade or business, he or she loses \$.50 of the Social Security benefits available.

Once he or she reaches age 70, his or her benefits are not reduced regardless of the level of such earnings.

First year of retirement for farmers. Special rules apply to the first year of retirement. The retired person receives benefits in any month that he or she did not work over 45 hours. Holdover crops of a farmer sold in the first year of retirement do not affect benefits in any month the farmer works less than 45 hours. Holdover crops from pre-retirement years sold in any year *after* the initial year of retirement generally do *not* create gross income from self-employment that will reduce Social Security benefits.

Taxation of Social Security benefits. Starting in 1984, Social Security and railroad retirement benefits will be included in gross income but the inclusion is limited to the lesser of:

A. One-half of the benefits received

or

B. Half of the excess of the sum of the taxpayer's adjusted gross income, interest on tax-exempt obligations, and half of the Social Security benefits over the base amount. (\$32,000 for persons filing jointly, \$0 for married persons filing separately, and \$25,000 for all other individuals.)

Example: 1984. Joe and Mary Retiree provide you with the following information. How much of their benefits are taxable in 1984? (Line 21(a) and (b) of the 1040.)

S.S. benefits received (joint return)	\$14,000
AGI	38,000
Tax exempt interest	2,000

Lesser of: A. 1/2 of benefits (\$7,000) or
 B. $38,000 + 7,000 + 2,000$ (47,000) over 32,000 or
 $\$15,000 \text{ excess} \div 2 = \$7,500$

Answer: \$7,000 (lower of A or B) of the benefits of this couple will be included in gross income in 1984.

SUMMARY

There are opportunities available to minimize the increasing Social Security and self-employment tax. However, these opportunities have to be analyzed in the light of present savings and their value over time when compared with the potential loss of ultimate benefits from the Social Security system.

Since "material participation" has an important impact on several Federal Estate Tax provisions, consultation about retirement and self-employment tax planning should include the tax payer's attorney and tax consultant.

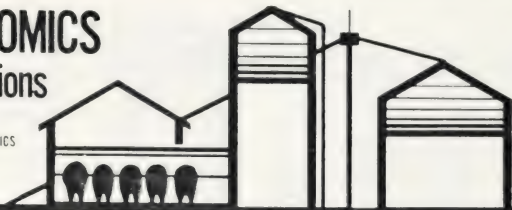
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



December, 1984

84-17/How to Make Money on Crops in 1985

IMPROVE OR ASSURE FARM INCOME PROSPECTS

Raise the crop combination that offers the greatest profit potential over variable costs. Compare the profitability of alternate crops. If a farmer seeded a legume crop on set-aside acres, he or she should consider opportunities for harvesting and selling hay. Remember that crop sales from wheat are available for paying bills earlier than sales from corn or soybeans.

Check the out-of-pocket expenditures required. Generally, wheat and soybeans require fewer inputs than corn. A rotation of corn after soybeans reduces the nitrogen fertilizer requirements below those for continuous corn. Also corn following soybeans is not likely to need soil insecticide applications.

Increase the profit potential by double-cropping soybeans after wheat, particularly in southern Illinois, when the soil moisture conditions warrant the seeding. However, input requirements are higher and possible returns are uncertain, so make sure cash for seed, herbicides, and fertilizer is not needed for other uses.

Consider raising specialty crops on contract. Many of these crops, such as sweet corn or peas, require little or no cash outlays beyond the expenditures for fertilizer and for tilling and seeding the crop.

Follow marketing strategies that insure profitable returns. Participation in the feed grain and wheat programs gives some level of price protection through the price support loan and the target-price deficiency payments. Those producers who do not elect to participate in the government programs should consider forward-pricing that portion of their crop that would insure the minimum cash flow for survival.

THE 1985 WHEAT AND FEED GRAIN PROGRAMS

Provisions of the wheat and the feed grain programs for 1985 have been announced. To become eligible for target price protection, price support loans, and farmer-owned reserve programs, feed grain and wheat producers must comply with the acreage reduction requirements. However, there is no required cross compliance between crops nor offsetting compliance between farms. The sign-up phase for both wheat and feed grain programs began October 15, 1984, and ends March 1, 1985. A summary of the program provisions and payment rates is given in Table 1.

Table 1. Program Provisions and Payment Rates, 1984

	Corn	Sorghum	Barley	Oats	Wheat
Required acreage reduction (% of base)	10	10	10	10	30
Maximum planted acreage (% of base)	90	90	90	90	70
Cash land diversion (% of base)	NA	NA	NA	NA	10
Diversion payment rate	..	..	..	..	\$2.70
Target price	\$3.03	\$2.88	\$2.60	\$1.60	\$4.38
Nine-month loan price	2.55	2.42	2.08	1.31	3.30
Reserve loan price	2.55	2.42	2.08	1.31	3.30
Maximum deficiency payment rate	0.48	0.46	0.52	0.29	1.08
Advance deficiency payment	.235	.23	.22	0	.54

The major features of the wheat program call for a 30 percent acreage reduction with a cash land diversion at the rate of \$2.70 per bushel of established yield on 10 percent of the base. Program participants will be eligible for a loan on their 1985 wheat of \$3.30 per bushel, national average, and deficiency payments based on a target price of \$4.38.

The feed grain program participants must reduce their acreage by 10 percent. Participants are eligible for a loan on their 1985 corn of \$2.55 per bushel and deficiency payments based on a target price of \$3.03. The 1985 program for feed grains will have no cash diversion payments, no payment in kind, and no immediate entry into the farmer-owned reserve.

Advance deficiency payments equal to 50 percent of projected payments are authorized for both wheat and feed grains. The advance payment rates are \$.54 per bushel for wheat and \$.235 for corn. Eligible wheat producers can also receive 50 percent of the full cash diversion payment in advance.

To be eligible for the farmer-owned reserve for both wheat and feed grains, farmers will have to take out a 9-month loan. Before the 9-month feed grain loans reach maturity, the Secretary of Agriculture could place a ceiling on the amount that could enter the reserve. Storage payments for both reserve corn and wheat are expected to continue at the present annual rate of \$.265 per bushel.

The acreage base for both feed grains and wheat on which acreage reduction will be figured is the acreage planted or considered to be planted to feed grains or wheat in 1983 and 1984. Acreage placed in the acreage reduction and PIK diversion payment programs during 1983 and 1984 is considered to be planted for the purpose of establishing a feed grain and wheat acreage base. Actually, each farm has two feed grain bases, one for corn and grain sorghum and one for oats and barley.

The eligibility requirements for land placed in Acreage Conservation Reserve (ACR) and the cover crops to meet program requirements are the same as those for 1984 programs. Producers have until December 31, 1984, to appeal assigned yields and base acreages for all crops on these farms.

COMPARING ALTERNATIVES

As a guide to crop combinations that might optimize net crop returns in your farming operation, the contributions of individual crops and idled acres at varying yields are presented in Table 3. An itemization of the costs of producing alternative crops is presented in Table 2. The net return over variable cost figures

Table 2. Estimated Costs Per Acre for Producing Crops, 1985

	Rotated corn (135 bu.)	Second- year corn (125 bu.)	Grain sorghum (120 bu.)	Soybeans (45 bu.)	Wheat (54 bu.)	Oats (80 bu.)	Double- crop soybeans (20 bu.)	Set aside cover crop	Alfalfa hay (4.5 tons)
Variable costs:									
Seed	\$ 20	\$ 20	\$ 6	\$ 10	\$ 10	\$ 8	\$ 14	\$ 4	\$ 10
Pesticides	16	24	14	19	1	1	28	..	6
Fertilizer									
N	35	35	32	..	19	14	..	..	..
P, K, Lime	26	23	20	23	19	15	9	4	50
Mchy. rep. & fuel	34	34	30	30	19	17	15	7	30
Dry. fuels & rep.	16	15	18	..	..	..	..	..	..
Interest on opera- ting capital	9	10	7	5	4	3	4	..	6
Total variable costs	\$156	\$161	\$127	\$ 87	\$ 72	\$ 58	\$ 70	\$ 15	\$102
Other costs:									
Mchy. depr. & int.	\$ 50	\$ 50	\$ 42	\$ 42	\$ 32	\$ 32	\$ 25	\$ 22	\$ 40
Labor	21	21	20	20	10	10	10	5	40
Management	17	16	13	14	8	6	6	..	14
Storing (int. & bin)	31	29	25	20	14	13	9	..	34
Msc.	15	15	15	15	15	15	8	8	15
Total other costs	\$134	\$131	\$116	\$111	\$ 79	\$ 76	\$ 58	\$ 35	\$143
Land costs (cash rent)	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90	\$	\$ 90	\$ 90
Total all costs	\$380	\$382	\$333	\$288	\$241	\$224	\$128	\$140	\$335

RAH/ESTIMATE

Table 3. Comparison of Crop Returns Per Acre, 1985

	Yield or payment base per acre	Harvest price or payment rate per unit	Crop returns per acre	Variable cost per acre ¹	Net returns over vari- able costs per acre
Corn (bu.)	100	\$ 2.20	\$220	\$137	\$ 83
	100	2.50	250	137	113
	100	2.80	280	137	143
	135	2.20	297	156	141
	135	2.50	338	156	182
	135	2.80	398	156	222
	170	2.20	374	185	189
	170	2.50	425	185	240
	170	2.80	476	185	291
Deficiency payment for corn set-aside acres					
100 bu. program yield					
5 mo. price 2.55 or less	900 ² bu.	\$.48 ³	432	20	412
	2.80	.23 ³	207	20	187
	3.10	.00 ³	00	20	-20
125 bu. program yield					
5 mo. price 2.55 or less	1,125 ² bu.	.48 ³	540	20	520
	2.80	.23 ³	259	20	239
	3.10	.00 ³	00	20	-20
150 bu. program yield					
5 mo. price 2.55 or less	1,350 ² bu.	.48 ³	648	20	628
	2.80	.23 ³	310	20	290
	3.10	.00 ³	00	20	-20
Soybeans,					
Single crop (bu.)	30	\$ 6.25	\$188	\$ 74	\$114
	45	6.25	281	87	194
	60	6.25	375	102	273
Double crop (bu.)	15	\$ 6.25	\$ 94	\$ 65	\$ 29
	20	6.25	125	70	55
	25	6.25	156	75	81
Wheat (bu.)	36	\$ 3.00	\$108	\$ 60	\$ 48
	54	3.00	162	72	90
	72	3.00	216	87	129
Deficiency for wheat set-aside acres					
Program yield (bu.) . . .	36 (126 ²)	\$ 1.00 ³	\$126	\$ 20	\$106
	45 (158 ²)	1.00 ³	158	20	148
	54 (189 ²)	1.00 ³	189	20	169
Cash payment for wheat diversion acres					
Program yield (bu.)	36	\$ 2.70	\$ 97	\$ 20	\$ 77
	45	2.70	122	20	102
	54	2.70	146	20	126
Oats (bu.)	60	\$ 1.50	\$ 90	\$ 54	\$ 36
	80	1.50	120	58	62
	100	1.50	150	64	86
Hay (ton)	3.0	\$80	\$240	\$ 73	\$167
	4.5	80	360	103	257
	6.0	80	480	133	347

¹Includes seed, pesticides, fertilizer, machinery repairs and fuel, drying costs, and interest on operating capital only. Also includes bin costs for commodity loan situations.

²Production eligible for deficiency payment per acre set aside:

corn: program yield x .9 ÷ .1 acre set aside.

wheat: program yield x .7 ÷ .2 acre set aside.

³Deficiency payment rate per bushel:

corn: \$3.03 - 5 month average price.

wheat: \$4.38 - 5 month average price of \$3.38.

indicates, in general, the effects of acreage shifts without a complete budget of the whole cropping system. For instance, a comparison of the \$182 net return over variable costs from a 135-bushel corn crop sold at harvest for \$2.50 per bushel with the net return at \$194 for a 45-bushel soybean crop sold at harvest for \$6.25 per bushel suggests that you shift some acres from corn to soybeans if you are not participating in the reduced acreage program for corn. However, unless you expect the advantage to continue for the long run, you may not wish to reduce feed grain acres planted below the maximum base level because it will reduce base acreages for participation in future governmental programs.

Similarly, in evaluating possible participation in 1985 programs for feed grains and wheat, you should compare the expected return per idle acre in feed grain set aside, wheat set aside, or wheat cash diversion with the returns from other crops. Although the 10 percent acreage reduction for corn and the 20 percent reduction for wheat is said to be without payment, one can consider the deficiency payment a return for the set-aside acres and compare this expected return with the returns from other crops.

The deficiency payment per acre set aside for corn or wheat on your farm can be estimated by multiplying your farm program yield by planted acres and dividing the number of acres set aside and multiplying that amount by the deficiency payment rate. The calculated deficiency payment net return over variable costs for 125 bushel corn program yield is \$520 per acre set aside at the maximum deficiency payment rate of 48 cents. With only a 23 cent payment rate, the deficiency payment per set-aside acre for 125 bushels program yield totals \$259 and would net \$239 over variable costs. Both of these net returns per acre idled exceed the \$182 and \$222 net returns for 135 bushels corn sold at harvest-time prices of \$2.50 and \$2.80. This comparison suggests that participation in the feed grain program would improve net crop returns, if 5-month average price of corn averages \$2.80 per bushel or less. However, if the quality of land set aside as conservation reserve has an expected yield lower than established program yield, then a higher price would be needed to generate equal returns.

Livestock producers considering participating in the program should compare the quantity of feed grains that could be raised on the idled acres in required ACR with the amount of feed grains that could be purchased with the sum of expected deficiency payment plus the crop costs saved by the idle acres.

The effect of participation in the 1985 feed grain and wheat programs on farm crop returns depends upon several factors. Three major factors are: (1) expected prices, (2) expected yields relative to program yields, and (3) the extent to which expenditures can be reduced by idling acres. Other factors are the level of payments for idled acres, the opportunity returns from land set aside in the Acreage Conservation Reserve, and the value of the advance payments in meeting current cash flow needs. And in the case of wheat, another factor is the expected effects of participation on double crop returns.

If crop prices for 1985 crops remain near the loan support levels, government payments for land diversion and deficiency target price payments per reduced acres in the required Acreage Conservation Reserve of program participants will equal or exceed net income from most crops that could be grown on those acres on most farms.

Producers should carefully budget the alternatives to their situation using worksheet AE 4543: Income Possibilities: Participation vs. Nonparticipation in 1985 Government Programs for Corn or Wheat. Copies of this worksheet are available from County Extension offices.

INSURE CROP YIELDS

Consider means to insure against low yields, either with formal or informal insurance. However, when the producer is faced with capital shortages, the formal will be less costly. The All Risk Federal Crop Insurance or Multiple Peril Crop Insurance is one means that producers can use to reduce some of the production risk for most of the crops raised. It covers unavoidable yield losses due to adverse weather conditions, including drought, excessive rain, hail, and wind. It also covers unavoidable losses due to insects and diseases. Producers can choose to insure their crops for 50, 65, or 75 percent of the average yield for their risk area. They also can choose from three commodity price levels. For producers whose businesses would not survive if yields dropped below one of the insurable value thresholds, the enrollment in the federal crop insurance program could enable them to avoid the catastrophic losses of business failure.

The All Risk Federal Crop Insurance is making changes that producers should be aware of. In 1983, Federal Crop Insurance Corporation began replacing area coverage with the Actual Production History (APH) of each producer for the purpose of determining future yield guarantees. In 1985, corn and grain sorghum producers who wish to participate in All Risk Federal or Multiple Peril Crop Insurance are required to provide ASCS with verifiable records of acreage and production for most recent crop years on an annual basis. However, if no records are available the first year, the producer will have his or her guarantee based on transitional yields. These yields can be obtained from either the insurance agent or local ASCS office. Future implementation of APH will include wheat, barley, and oats in 1986 and soybeans in 1987.

There are informal insurance alternatives to reduce the physical production risks or at least their effects on the farm business insured. One strategy is to raise a combination of crops rather than just one. The yields from a rotation of wheat, corn, and soybeans are not likely to all be reduced in a single year.

Another strategy to insure yields is to apply more inputs than may be actually necessary. Precautionary applications of pesticides to avoid a possible yield reduction rather than waiting for signs of infestation is an insurance strategy. Excess power and machinery capacity to insure timely seeding and harvesting operations also is an insurance strategy for higher harvested yields.

Informal risk strategies have a cost. They require an expenditure for more inputs or they reduce income from available resources. For producers with limited working capital, the formal crop insurance may be a more economical alternative in 1985.

CUT BUSINESS EXPENDITURES

To cut business expenditures a farmer should do the following: Cut costs of crop production. But cut costs with caution or income may be cut more than costs. Improved cash flow from crop production can arise either from increased yields or reduced costs. Increased yields reduce per bushel costs so long as the farmer doesn't use excessive inputs. Above all, set realistic yield goals. When funds are short, overshooting input quantities carries a greater penalty than under-shooting.

Consider ways to cut fertilizer costs without cutting yield, particularly on corn. The economic principle is to reduce units of inputs as long as the value of the

change in output or returns is less than the reduced costs. This means delay maintenance applications of phosphorus, potassium, and lime if the soils are up to test. Be cautious in reducing nitrogen levels. Agronomists suggest that after a drought year producers may reduce application rates of nitrogen by one-half of the unused nitrogen left over from the previous year application on the corn crop.

Monitor weed and insect problems. Use pesticides only when economics justify, particularly in the case of postemergence treatments. Forego precautionary insurance applications for possible problems. If labor, power, and machinery are available, consider applying agricultural chemicals rather than custom hiring the application.

Hold down machinery costs. Cut fuel and repair bills by making only the necessary tillage operations for good weed control and seed germination. Consider repairing rather than replacing machinery. If replacement is necessary, consider alternatives to buying new machinery. Conserve capital by buying used machinery rather than new. If acreage on the farm is below the capacity of a machine, consider owning the machine jointly with a neighbor. Another alternative is to rent equipment or have the work custom hired. To avoid timeliness losses, make arrangements ahead to have the equipment when you need it.

Reduce corn grain-drying costs. Avoid overdrying. Harvest at lower moisture levels and use low-temperature drying methods. However, don't wait too long. Avoid excessive field losses that may occur due to lodging from the brisk fall winds.

Lower cash rent bids. Lower grain prices and higher operating costs reduce both the alternative share rents earned and the amount that tenants can bid for land.

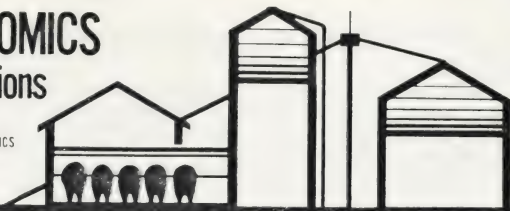
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



January, 1985

85-1/Financial Condition of Illinois Agriculture

There are a variety of measures which can be used to assess the financial condition of Illinois agriculture--wealth, debt load, income, foreclosures, bankruptcy, and many others. No one measure provides a complete picture of financial conditions, and most available measures mask the tremendous variation which exists among different types of farms and different areas of the state. The purpose of this article is to provide an overview of financial conditions in the state using a variety of available measures.

WEALTH

Trends in the wealth position of Illinois agriculture are shown in Table 1. Aggregate wealth of the farm sector of Illinois has deteriorated substantially since January 1, 1981. Net worth in nominal dollars dropped from \$66,701 million on January 1, 1981 to \$51,682 on January 1, 1984--a drop of 22.5 percent. If one adjusts this decline for inflation, the real wealth position of the farm sector declined by approximately 42 percent over the same period.

Since January 1, 1984, it appears that both the nominal and real wealth positions of the Illinois farm sector have continued to erode. Declining land values spurred by lower net farm incomes and interest rates three times the rate of return are primarily responsible for the equity decline in the Illinois farm sector.

Despite the tremendous decline in wealth of the farm sector in Illinois, the average wealth per farm remains relatively high. For example, on January 1, 1984, the average per farm wealth was approximately \$500,000. To keep this in perspective, national figures show the average equity per family for all families to be approximately \$16,000. However, it should be recognized that much of the farm wealth is tied up in nonliquid assets such as machinery and farmland.

DEBT LOAD

It is apparent from Table 1 that farmers have reacted to the adverse economic conditions in agriculture by reducing their use of borrowed funds. Throughout much of the decade of the 1970s, farm debt was growing at the rate of 12 to 14 percent annually. But beginning in 1982, this rate of increase began to fall sharply, and by January 1, 1984, the absolute level of debt in Illinois agriculture was declining.

One measure of the relative debt load for the farm sector of Illinois is the ratio of debt to assets. As shown in Table 1, the debt-to-asset ratio increased from 11.7 percent in 1979 to 18 percent in 1983. Compared with the neighboring states of Iowa, Missouri, and Wisconsin, the debt-to-asset ratio for Illinois agriculture

is relatively low. However, the state average numbers mask the substantial variation that exists among farm operators.

Debt-to-asset ratios for Illinois farm operators based upon Farm Business Farm Management (FBFM) records are shown in Table 2. The debt-to-asset ratios presented in that table are at the dividing line between the third and fourth quartile. Thus 25 percent of the farm operators in each category have a ratio higher than the number shown. Information in Table 2 reveals that the debt-to-asset ratio tends to be higher on larger size farms and that the ratio tends to be the lowest for full owners--individuals who own all the land they operate. The ratio tends to be the highest for full tenant operators--individuals who rent all the land they farm. Thus people with the most serious financial problems tend to be tenants, even though they own none of the land which has fallen sharply in value.

Another measure of the debt load of farm operators is provided by FBFM data which shows the level of interest expense as a percent of the value of farm production (Table 3). Notice that 49 percent of the farms in this sample have interest expense as a percent of the value of farm production of under 10 percent. For these farmers, average net farm income in 1983 was \$29,891. By contrast, 19 percent of all farms in this sample had interest expenses of more than 25 percent of the total value of farm production. On the average, these farms had negative net farm income. The breakdown by region of the state shows that central and northeast Illinois tend to be in better financial shape than western and southern Illinois. It is also apparent from Table 3 that problems tend to be the most severe on beef and hog farms.

NET FARM INCOME

An important measure of the financial health of an industry is the net income achieved by firms in the industry. Table 4 shows the levels of net farm income in Illinois since 1976. Throughout the late 1970s, net incomes were relatively favorable, but for 1983 net farm income for the state was a negative \$584 million. That is the first time in over 25 years that net farm income for the entire state has been negative.

Another indicator of the income picture for Illinois agriculture is provided by the magnitude of labor and management earnings of farm operators in the state. Labor and management earnings reflect a return to farm operators after payment of all operating expenses and after allocating a return to the capital assets used on farms. Table 5 gives the estimated amount of labor and management earnings for various sizes and types of farms in the state and for different geographic areas of the state. The overall results show very poor labor and management earnings on beef and hog farms. However, grain farms in southern Illinois have also fared poorly as a result of adverse conditions.

FARM DELINQUENCY AND BANKRUPTCY

A commonly suggested measure of financial stress is the rate of delinquencies on farm loans. However, care must be taken in using such measures because individuals can experience severe financial problems without being delinquent on a loan. For example, if an individual is forced to sell assets to meet debt obligations, there may be a serious cash flow problem, yet the sale of assets prevents the loan from being delinquent. Despite the problems of interpretation, it is useful to compare delinquency rates on farm loans in Illinois with other areas of the country.

Delinquency rates of farm production loans made by commercial banks in Illinois tend to be well below the national average (Table 6). Though information is not

presented for other lenders, it is clear that delinquency rates on Farm Credit System loans and Farmers Home Administration loans in Illinois also compare favorably with national averages. Perhaps the most surprising information revealed by Table 6 is the relatively small percentage of delinquent borrowers in the face of a much larger percentage of farm operators with negative net farm incomes. It is obvious that farmers are taking the steps necessary to avoid delinquency by rescheduling loans, by liquidating capital assets, by not replacing depreciating equipment, or by supporting debts with off-farm incomes.

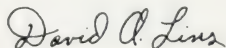
SUMMARY

Illinois agriculture, like much of the rest of the nation's agriculture, has experienced significant financial problems in recent years. Both net worth and net farm income have fallen sharply. Yet the extent of the problem varies widely by region of the state, tenure pattern, and type of farming operation. Both western and southern Illinois have been hurt by both poor prices for livestock and by adverse weather conditions. Central and northeastern Illinois, areas with large concentrations of cash grain farms, have fared somewhat better. The most serious problems have tended to occur on full tenant operated farms and on farms specializing in beef and hog production.

Despite serious financial problems, delinquency rates on farm loans in Illinois remain well below the national average. Likewise, despite substantial declines in equity due to falling land values, average net worth of farm firms remains relatively high.

The future for Illinois agriculture holds both promise and dismay. Many farm operators are still in good financial shape and many are still realizing a profit from farming operations. These farmers represent the future of Illinois agriculture. Unfortunately, there are also a significant number of farm operators with high debt levels and low or negative net farm incomes. The future for these operators is uncertain, but without substantial increases in commodity prices, it seems unlikely that they will be able to continue in farming.

Prepared by David A. Lins, Extension Specialist, Farm Financial Management, and John T. Scott, Jr., Extension Specialist, Land Economics and Farm Management



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Table 1. Balance Sheet of the Illinois Farming Sector, January 1, 1979-84^a

Item	1979	1980	1981	1982	1983	1984 ^b
<i>Assets</i>		<i>million dollars</i>				
Real estate	53,510	57,974	61,420	55,678	49,565	48,560
Livestock and crops	4,334	5,177	5,193	5,154	5,230	3,848
Machinery and motor vehicles	5,868	6,622	6,997	7,330	7,353	7,172
Financial and other assets	2,711	2,795	2,944	3,021	3,140	3,271
Total assets	66,423	72,568	76,564	71,183	65,288	62,951
<i>Claims</i>						
Real estate debt	4,099	4,965	5,585	6,204	6,337	6,378
Non-real estate debt	3,664	3,988	4,278	4,754	5,415	4,891
Total debt	7,763	8,953	9,863	10,958	11,752	11,269
Net worth	58,660	63,615	66,701	60,225	53,536	51,682
Total debt and equity	66,423	72,568	76,564	71,183	65,288	62,951
		<i>percent</i>				
Debt-to-asset ratio	11.7	12.3	12.9	15.4	18.0	17.9

^aSource: Economic Indicators of the Farming Sector, State Income and Balance Sheet Statistics, 1983.

^bPreliminary.

Table 2. Farm Operator Debt-to-Asset Ratio for Illinois FBFM Farms¹

Tenure		Ratio dividing third and fourth				
Soil rating (SPR)	No.	quartile by years ²				
Tillable acres	farms	1972	1980	1981	1982	1983
		percent				
Full owner 86-100 SPR						
Under 340	49	20	9	11	15	18
340-799	29	23	11	10	16	22
Part owners 86-100 SPR						
Under 340	113	27	19	19	13	38
340-799	483	34	24	29	40	48
800+	189	40	32	32	46	49
Full tenant 86-100 SPR						
Under 340	85	38	35	35	50	38
340-799	209	42	47	46	52	51
800+	45	41	38	44	52	55
Full owner 56-85 SPR						
Under 340	119	29	19	23	29	22
340-799	70	31	16	15	25	31
Part owners 56-85 SPR						
Under 340	208	34	23	29	35	40
340-799	559	37	26	30	41	48
800+	303	35	33	34	46	53
Full tenant 56-85 SPR						
Under 340	111	45	36	42	48	50
340-799	184	47	46	45	54	55
800+	53	50	46	38	53	53

¹This represents a ratio of debt-to-asset value for the farm business only. Debts and assets from nonfarm or personal accounts are not included. The ratio was derived from known data on operator interest paid and operator total farm investment values.

²Indicates that 25 percent of the farms for the group specified had debt-to-asset ratios greater than this percent shown.

Table 3. 1983 Illinois--4,689 FBFM Association Farms by Operator Interest Paid as Percent of Operator Gross Value of Farm Production¹

	Farm type or region	Under 10	Operator interest paid as percent of gross value of production							All
			10-14.9	15-19.9	20-24.9	25-29.9	30-34.9	35+		
Number of farms . . .	All	2,274	625	528	382	280	193	407	4,689	
Percent of farms . .	All	49	13	11	8	6	4	9	100	
	South	44	13	11	9	7	4	12	100	
	West-NW	42	13	12	9	8	5	11	100	
	Cen-NE	53	14	11	7	5	4	6	100	
	Grain	50	14	12	8	5	4	7	100	
	Hog	44	14	10	8	6	5	13	100	
	Dairy	46	17	11	9	8	4	5	100	
	Beef	39	12	11	9	8	4	17	100	
Interest as percent of gross	All	4	12	17	22	27	32	49	15	
Net farm income . . .	All	\$29,891	\$18,283	\$11,887	\$ 9,073	\$-4,829	\$-12,402	\$-33,994	\$15,261	

¹Gross value of farm production is the operator's gross farm returns from the cash and accrued value of sales of products and services, less cost of purchased feed and livestock, plus change in inventory values for grain and livestock, plus value of farm products used.

Table 4. *Illinois Net Farm Income after Inventory Adjustment, Million Dollars*

Year	Net farm income
1976	\$1,502.4
1977	\$1,557.6
1978	\$1,437.1
1979	\$2,033.3
1980	\$ 520.5
1981	\$1,891.3
1982	\$ 934.8
1983	\$ -584.0

Table 5. *Operator's Share of Labor and Management Income by Size and Type of Farm (1979-83 Average)*

	Number of acres per farm				
	Under 340	340-649	650+	All	No. farms
Northern Illinois					
Acres of tillable land . .	222	432	842	469	
Labor and management earnings by type of farm					
Grain	\$ 1,168	\$ 7,120	\$10,050	\$ 6,911	
Hog	-1,846	2,468	-1,806	- 213	
Beef ^a	-10,566	-16,756	-12,111	-14,082	
Dairy	2,708	3,060	...	2,809	
All	- 104	2,754	4,842	2,352	1,097
Central Illinois					
Acres of tillable land	251	449	845	545	
Labor and management earnings by type of farm					
Grain ^b	\$ 3,575	\$ 8,369	\$15,250	\$ 9,935	
Grain ^c	815	4,185	8,454	5,413	
Hog	- 912	-5,889	- 799	-3,519	
All	1,577	4,309	11,010	6,044	1,839
Southern Illinois					
Acres of tillable land	223	466	941	573	
Labor and management earnings by type of farm					
Grain	\$-1,047	\$- 576	\$-2,652	\$-1,871	
Hog	-5,036	-6,674	...	-6,835	
Dairy	6,864	5,703	...	5,987	
All	- 345	-1,595	-3,286	-1,932	824

^aIncludes central Illinois.

^bHighly productive soils with soil-productivity ratings of 86 to 100.

^cHeavy till and transition soils with soil-productivity ratings of 56 to 85.

Source: Summary of Illinois Farm Business Records prepared by University of Illinois, Department of Agricultural Economics, in cooperation with Illinois FBFB Association.

Table 6. Farm Production Loans Past Due 30 Days or More as a Percentage of Total Farm Production Loans, Illinois and the United States

Area	Dec. 31 1982	Mar. 31 1983	June 30 1983	Sept. 30 1983	Dec. 31 1983
	<i>percent</i>				
Illinois	2.1	3.1	2.1	1.8	1.9
United States	3.8	4.6	2.6	2.7	3.7

Source: Emil Melichar, "Agricultural Banking Experience," presented to Financial Stress in Agriculture Workshop, Kansas City, Missouri, October 22, 1984.

FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



February 1985

85-2/Planning Ahead: A Must for Happy Retirement Years

Americans are living longer. In 1930, the life expectancy of a fifty-five-year-old female was fourteen years. In 1950 it was twenty, and in 1980, twenty-five years. The 1983 mortality tables, currently being used by many insurance companies, show a fifty-five-year-old American female's life expectancy to be thirty-one years, or more than doubled in fifty-three years.

"The longer you live, the longer you're going to live"--that's the exciting story! So there will be more and more older Americans as the years come and go.

In 1930, one of each twenty persons was over sixty-five years of age; in 1980, one of ten; and early in the twenty-first century one of five. Some predict that if cancer and heart disease, the two greatest killers of older Americans, are not cured and there is only continued progress in the diseases' control and treatment, one of every three Americans could be over sixty-five early in the next century.

Planning ahead will help you find happiness, satisfaction, security, and fun as you anticipate longer life expectancy and become part of the ever-increasing portion of the "older"--that is not to say "old"--population in America.

"The ten years between my fifty-fifth and sixty-fifth birthdays went so fast," complained a western Illinois retired farmer. "During that time, we should have spent more time planning for our retirement years. We've been retired fifteen years now--and they've been good years. But the first few could have been better if we'd done some planning before we quit farming."

Those remarks are fairly typical of responses from 144 retired farm couples, widows, and widowers interviewed recently about their retirement experiences to provide a base for development of a new Cooperative Extension Service program on pre-retirement planning for farm couples.

People interviewed ranged in age from sixty-two to ninety-four and in years of retirement from one to thirty-three. When they had farmed, they had dairied, raised hogs, fed cattle, and grown corn, soybeans, wheat, and other crops. Some had stayed right on the farm when they retired. Others had moved to a nearby small town or the county seat. Then there were those who had "pulled up roots and moved to 'Sun Country'."

The three- to four-hour personal interviews centered around their experiences--good and bad--since retiring, what they would do differently if they could go back and do it over, and what planning suggestions they had for farm couples not yet retired.

In one way or another, most couples felt that their retirement years could have been better from the start if they had devoted as much time to thinking and planning for retirement as they typically did when they made adjustments in their farm business operations.

Today, more than ever before, retirement years are worth planning for. People live longer. Consider that in 1980, for each 100 persons in the United States who were sixty to sixty-four years of age, there were fifty-nine who were eighty or older. What has been the result? Many situations like the following.

A ninety-four-year-old Illinois farmer and his ninety-two-year-old wife have spent twenty of their thirty-three retirement years in Sun City, Arizona. He said during his interview, "You know, Mother and I just didn't expect to live this long. Why, we thought we farmed our entire lives but we've been retired more years than we farmed."

WHAT WILL YOU DO?

The pre-retirement years are also a good time to begin examining what you'll do after retirement. How will you spend all of that free time? And what will you call it? Is it "leisure," "loafing," "lazy," "fun," or "goof-off" time? Can you learn to loaf as you watch neighbors and friends work?

The retired farm couples found their time largely spent in these activities: work, hobbies, volunteerism, travel, and spending more time with family and friends. But whatever they did, they said "spend some of your time in retirement doing things to help others. It will give you a feeling of satisfaction, that I can still do something that somebody else wants, that I am still worth something, that I have self-respect."

These couples also reported that a large percentage of their time was spent with their spouses. That observation made clear the need for effective communication--and for including some time designed for partners to be apart. . . .

Work. To most people, working is more than a way to earn a living—it also defines their value to society and gives their lives purpose. One person said, "I often feel that other people don't respect me when I don't work."

Such feelings have real meaning to many people and explain why many retired farmers continue to work at least part-time in a family or other farm operation. But those feelings shouldn't be used to delay or avoid retirement. Rather, as one person put it, "Use your pre-retirement years as the transition period to get the farm off your hands and examine other alternatives".

Driving a school bus, setting up machinery for dealers, selling seed or supplies, doing custom work, or other part-time labor are all logical farm-related work if you're convinced that you want to stay close to the farm in your retirement work.

Your financial situation and your attitudes about work may dictate how much of your retirement time you devote to earning money. Use your preretirement years to explore earning opportunities that will meet your needs but be less pressing than farming.

Hobbies. Also use the pre-retirement years to explore how hobbies you have now might add to your retirement income, provide personal satisfaction, and be just plain fun. If you've let farming crowd hobbies out of your life, take time before retirement to develop new interests or rediscover old ones. Don't make the mistake of saying, "I'll wait till we quit farming to develop new interests."

One Illinois farmer "got hooked" on restoration of broken-down machinery and vehicles and found his new hobby both time-consuming and profitable. Another retired Illinois farmer remembered his first job after leaving high school and an earlier interest in welding that developed during his Air Force years. After retirement, he enrolled in a community college course and now takes custom orders for sculptures that he creates from scrap metal.

Volunteerism. If earning a living isn't all that necessary, you may find volunteering a satisfying and rewarding way to spend your retirement time. And you probably have lots of "stars in your volunteering crown" from doing things to help others while you've been farming. If you feel "burned out" on some volunteer jobs, look for new opportunities, organizations, and people.

If you're looking for a way to "stay young," volunteer to work with a youth group or serve as a "foster grandparent" for your hospital, school, or other local group. Perhaps you're looking for ways to meet people your own age; volunteer for some program sponsored by your local senior citizen's group. Or provide a service nursing homes couldn't normally afford. If you still have a yen for your farming days, volunteer to work with CROP or The Heifer Project, or teach special classes for 4-H or farm youth.

Above all, view volunteerism as a way to give of yourself. That characteristic has been typical of Illinois farm people and it almost always returns benefits that add as much richness to the lives of those who volunteer as it does to the intended benefactors.

Most of those interviewed agreed on the aspects of retirement living that could have benefited from further thinking. Chief among them was choosing a place to live.

WHERE WILL YOU LIVE?

Most farm couples spend their entire working years living on the farm they operate. The house they live in often is the house that was there from the beginning. But with retirement come new opportunities. Not only can farm couples choose the type of housing they want, they also can choose where they'll locate it. The latter decision is one that often benefits from a little deep thinking. Most retired farm couples can be categorized in one of several ways.

One type of couple never really examines the alternatives. Without giving it much thought, such couples know that they are going to "stay put." For some, that means staying in the same house. For others, it means moving to another house on the farm, or building a new house at a favorite on-farm location. For some couples "staying put" means a move to the town that currently serves as their community center.

All of these couples have their reasons. They know that they will be close to family and friends. They will keep their current health and dental care facilities and other familiar service providers such as banks and shopping centers. They will also be able to continue membership in their churches, clubs, and social organizations. Despite the many changes retirement may bring, much of retirement living remains the same for those who "stay put."

Another type of retiring farm couples quickly lays thoughts of "staying put" aside. These couples are all for something new. And they have reasons, too.

Some move to seek a preferred climate. It's not just that the winters seem longer and colder. Many seek new climates for relief from health problems such as asthma, sinus conditions, and arthritis.

Others move to gain the benefits of improved health facilities or special services for older people that "didn't exist where we farmed." Still others move simply to get a house and yard that don't require so much work, or to avoid transportation complications.

Retiring farm couples have different reasons for their choices, but one thing seems evident. Most farm couples nearing retirement can benefit from a thorough study of their alternatives--and the strengths and drawbacks of each.

Several retired couples said they planned vacations during their farming years to check out possible retirement sites. They talked with people, both long-term residents and newcomers, who lived in each locale. One couple even moved to Portugal when they retired.

Many found ways to get better acquainted with retired couples--mostly as a way to determine what it would be like to live near a high percentage of retired people and also to learn what being retired is really like.

Equally as important as learning the choices, many retired couples said, was the need to become comfortable with talking about retirement before you do it.

TALK BEFORE YOU DO ANYTHING

Many retired farm couples interviewed admitted that they never talked about retirement until they "did it." Husbands didn't know what wives were thinking. Wives didn't have a clue about their husbands' hopes and apprehensions as retirement drew near. In some cases, retirement decisions and plans were announced unilaterally at the breakfast table. The listening spouse had no indication that retirement was near at hand and was totally caught off guard when a move to Florida was announced.

The pre-retirement period is a good time for couples to learn to talk with each other--if they've somehow managed to avoid doing so already. Discussion helps assure that retirement plans are shared and fully understood. And it also is good preparation for the retirement years when "togetherness" is probably at a level even higher than when couples were dating.

Lifestyle Changes. Some farm wives tend to think "my lifestyle won't change much when we retire. There will still be the usual homemaking duties." But many of the couples and widows interviewed said that "woman's work" did change. Take, for example, the couple that had moved from a fourteen-room farm home, full basement, and two big porches to a one-bedroom condominium in the county seat. Or consider the couple that moved into a retirement village which provided maid service once a week, one meal a day, and laundry once a week. Yes, the woman's lifestyle can change.

Travel. After spending years "tied to the farm," many farm couples view retirement years as an ideal time to travel and for many, it is. But again, test the idea before you retire.

Some farm couples have found that traveling on a continual basis is almost like work. Like Christmas fudge, constant travel can be too much of a good thing. Many people prefer to maintain a home base and plan trips that last four to six weeks at comfortable intervals.

The Golden Age Passport--available through most federal recreation areas--makes federal and state recreation areas a real bargain for those over sixty-two. Some colleges and universities offer foreign travel and study programs that may be of interest.

But start early. As the years slip by, your interest in getting "on the road" may falter. Because travel can be tiring as well as exciting, you'll want to do as much traveling as possible during your early retirement years when your health isn't a limiting factor.

Note: Some of the above is adapted from material prepared by Delbert T. Dahl, former head of the Office of Agricultural Communications.

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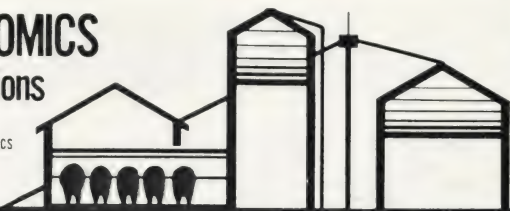
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April 1985

85-3/Financial Position of Illinois Farm Operators: Cost and Returns from Crop and Livestock Enterprises

NET WORTH DECLINE CONTINUES FOR AVERAGE ILLINOIS FARM OPERATOR

Net farm income information from Illinois Farm Business Farm Management (FBFM) data can serve as the basis from which to calculate an estimate of net worth change. On a cost basis (without considering inflation or deflation of capital assets values), the change is calculated by adding together the net farm and net nonfarm income as shown in Table 1 and then subtracting withdrawals for family living and income and Social Security taxes paid. Using this procedure, the average Illinois farm operator's net worth declined by an estimated \$13,086 in 1981, increased by \$1,240 in 1982, declined by \$4,174 in 1983, and dropped another \$10,376 in 1984.

Total net worth decline on a fair market value basis balance sheet would be much greater if it included the change in land values during the 1981-1984 period. Estimates on land value declines in this period would average about \$18,000 per farm per year. The total decline since 1981 would then be approximately \$100,000 in four years per farm. But net worth changes would be highly variable between farms and areas in the state. This report is based on a summary of 4,230 Illinois Farm Business Records, which are kept in cooperation with the Illinois FBFB Association and the University of Illinois Cooperative Extension Service.

Net farm income is the accrued value of the operator's share of farm production less total operating expenses, including the amount of interest paid and depreciation plus gain or loss on machinery or buildings sold. When added to net nonfarm income, this is the income available to pay for family living, income and Social Security taxes, long-term debt principal, and savings. Estimates used in Table 1 for net nonfarm income and withdrawals for living expenses and taxes paid were based on a sample of 195 central Illinois farm families. The estimates balanced all sources of farm and nonfarm funds with the uses of funds to identify precise expenditures for these withdrawals. These expenditures were then adjusted downward by 10 percent to reflect belt tightening that has already occurred as an adjustment to lower incomes and for above average size of farms in central Illinois.

CAPITAL DEBT REPAYMENT CAPACITY

The average funds available for capital debt repayment per farm family for all 4,230 farm operators were estimated at \$7,524 in 1981, \$24,632 in 1982, \$20,152 in 1983, and \$14,026 in 1984. (See Table 1.) These were the funds estimated to be available for capital purchases or principal payments on long-term debt. The table shows actual dollar commitments per farm that were made for capital purchases for machinery,

equipment, or buildings. Note that in all four years these commitments would have depleted all the funds and left nothing for long-term debt repayment. However, the average farm with long-term debt payments would probably borrow funds to finance the new capital purchases as long as there was adequate collateral in the business.

The records show funds available for debt repayment have been highly variable among areas in the state. In 1983, central, northern, and northeastern Illinois areas had positive net worth increases while southern, western, and northwestern Illinois showed drops in net worths. In 1984, net worth declined in all areas of the state, with the southern and northeastern Illinois areas showing the greatest drop. Parts of central Illinois came close to holding their own.

DEBT-TO-ASSET RATIO

Based on the summary of total farm asset values for all record keepers as of January 1, 1984, and the actual cash interest paid, it is possible to approximate how much debt there is for each \$1.00 of assets. The total fair market value of the operator's grain, livestock, and current value of real estate on hand on each farm on January 1, 1984, averaged \$560,000. The total operator cash interest paid in 1984 averaged \$18,491 per farm or \$34 per tillable acre. If we assume an average outstanding interest rate of 10 percent on all debt, it would compute approximately \$185,000 of liabilities. Without considering the value of personal and nonfarm assets owned, the farm debt-to-asset ratio would be .33 or 33 cents debt per \$1.00 of assets. With adjustments in the value of farm assets for personal and nonfarm assets, one might logically assume that the average Illinois farm record keeper had a debt-to-asset ratio somewhere between .25 and .33 entering 1984.

Each farmer should calculate his or her debt-to-asset ratio to see where he or she ranks in relation to this average. However, it is important when documenting financial information for the loan officer that accrued items such as accounts payable and receivable plus accrued tax liabilities be considered. Ratios above .40 may be considered high. This may be especially true if net farm incomes continue low for the next few years. Ratios above .70 (70 cents debt per \$1.00 of assets) may be beyond help without remedial action.

INTEREST PAID AS PERCENT OF GROSS

In 1983, there were 81 percent of the FBFM farm operators having positive net farm incomes with cash interest payments less than 25 percent of the gross farm returns. The 19 percent with interest payments exceeding 25 percent of the gross had negative net farm incomes and could be expected to be having cash flow problems. The 9 percent having more than 35 percent of the gross paid for interest had negative net farm incomes averaging \$33,994 per farm. This group could be expected to have difficulty maintaining their farm business without off-farm income. These percentages are expected to be about the same for 1984, when the 1984 data is summarized. All net farm incomes for 1984 are averaging 48 percent below 1983, with the greatest drop in northern, central, and eastern Illinois areas.

COST AND RETURNS FROM CROPS

Corn and soybeans are important crops contributing to the net farm incomes and the current financial status of farm operators. See Figures 1 and 2 for the cost and

COST and RETURNS - Corn, Soybeans, Pork

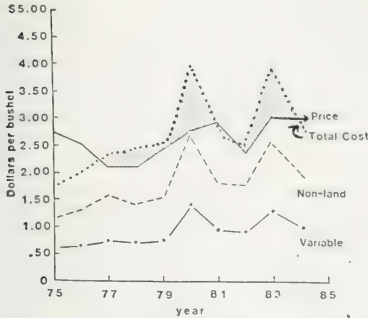


Figure 1. Cost and returns per bushel of corn produced on central Illinois grain farms, 1975-1984. Soil productivity rating, 86-100.

Please Note...

Shading indicates deficit below costs on all three charts.

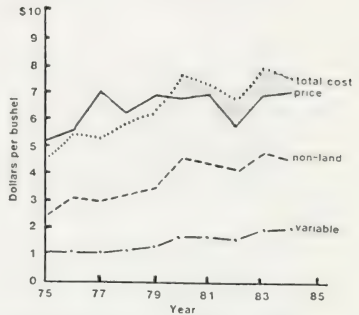


Figure 2. Cost and returns per bushel of soybeans produced on central Illinois grain farms, 1975-1984. Soil productivity rating, 86-100.

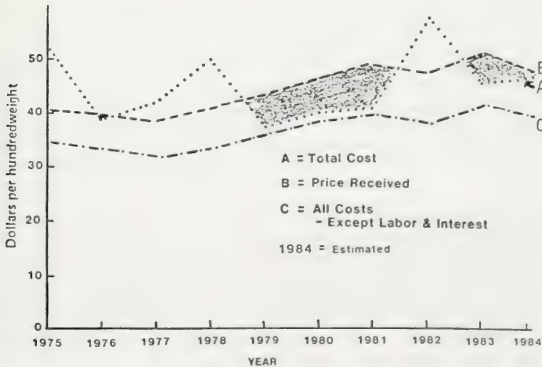


Figure 3. Cost and returns per hundred pounds of pork produced on farms with under 250 litters, 1975-1984.

return per bushel of both corn and soybeans produced each year from 1975 to 1984 on 500 central Illinois grain farms with high quality soils and no livestock. In Figure 1, note that the total cost line to grow a bushel of corn has exceeded the average annual Illinois corn price line each year since 1977, with the exception of 1981. The difference between the total of all cost and the total nonland cost line is the charge for the use of land. The deficits indicate that profits (returns for risk and management) had to come from equities in capital, primarily land, or other unpaid inputs such as operator labor or debt-free facilities. These low returns continue to bring down land values and force lower cash rents.

The variable cost line reflects the total of cash expenditures for fertilizer, pesticides, seed, and drying, which are normally shared according to the terms of the lease on rented farms, plus machinery repairs, fuel, and hire. Other nonland costs include labor, depreciation, interest, buildings, and overhead. There was no change in total costs per acre in 1984 from 1983, but the higher corn yield of 141 bushels per acre on these farms resulted in a much lower production cost per bushel. With a normal yield of 134 bushels per acre on these farms, costs per bushel are now averaging about \$1.00 for the variable cost line, \$2.00 for the total nonland cost line, and \$2.85 for the all cost line.

Figure 2 shows the cost and return per bushel of soybeans produced on these same farms from 1975 to 1984. The total cost line has exceeded returns, as shown by the average annual price line each year since 1980, reflecting large soybean supplies and weak demand. With a normal yield of 42 bushels per acre, costs per bushel are now averaging about \$1.90 for the variable costs, \$4.40 for the total nonland costs, and \$7.25 for the total costs. Total cost per bushel can be expected to go down as rent for the use of land goes down.

COSTS AND RETURNS FROM LIVESTOCK

Livestock also have been important to the current financial status of farm operators. The cost and returns per hundred pounds of pork produced annually from 1975 to 1984 on a sample of 94 farrow-to-finish enterprises with an average of 173 litters per year are shown in Figure 3. Except for 1982, costs have exceeded returns each year since 1978. If the average producers used large amounts of borrowed capital and hired labor in the period from 1979 to 1981, they would have had little or no cash left from this enterprise after paying the costs represented by line C. Unless it was possible to use savings, borrow from the equities in the crop enterprise, or borrow from a lender during this three-year period, the average producer would have been forced out of business.

The average returns above feed cost and the cost of purchased animals from about 2,000 individual annual livestock enterprise records from 1980 to 1984 are shown in Table 2. This is the return available to pay for labor, machinery, equipment and building repairs, depreciation, livestock expense, taxes, overhead, and an interest charge on all capital used. There is no profit until these costs are covered. The returns for the past five years for all enterprises except dairy are less than the total cost of production.

Based on the estimates of nonfeed costs in Table 2, the 1980-1984 average return above feed to cover these nonfeed costs for hogs (farrow-to-finish) was \$19.00 cost minus \$16.48 returns, or a negative \$2.52 per hundred pounds. For feeder-pig finishing enterprises, returns above feed averaged \$2.82 less than nonfeed costs. Feeder cattle show returns per 100 pounds produced that are \$9.30 short

of covering costs; dairy returns, while dropping the past two years, averaged \$22 per cow above costs; while beef cow herds are \$163 short per cow.

The high interest charges, and excess supplies along with only moderate demand for livestock products, are important factors that are contributing to the negative profit margins on all enterprises. Livestock producers who use their own capital without borrowed funds and those producers who have above-average efficiency have been in the best position to cope with these low prices and high costs.

SUMMARY

This report reviews the financial status of Illinois farm operators over the past four-year period based on the summaries of Illinois Farm Business Records. Average net farm incomes have been at a very low level for the past four years. Net worth gains made in the seventies have been reduced at the rate of about \$25,000 per year per farm for the past four years. Estimates indicate that between 4 and 6 percent of the farm operators each year for the next several years may find their net worths too low to be able to stay in business due to lack of operating funds. It is, therefore, important for each operator to carefully monitor his or her financial position so that business adjustments can be made timely and in an orderly manner based on the analysis of the farm income, cash flow, and net worth statements. While these adjustments may be painful for some, it is also worth noting that it is possible that the base for a more productive and profitable agriculture is being set for the future.

Table 1. Estimated Change in Net Worth and Capital Debt Repayment Capacity for 4,230 Illinois Farm Operators

	All Illinois counties			
	1981	1982	1983	1984
Net farm income.	\$10,875	\$19,540	\$16,627	\$ 8,624
+ Net nonfarm income ¹	4,766	8,202	6,873	6,800
- Family living ²	23,320	22,180	23,845	22,000
- Income and Social Security tax ²	5,407	4,322	3,829	3,800
Change in net worth.	\$-13,086	\$ 1,240	\$-4,174	\$-10,376
+ Depreciation	20,610	23,392	24,326	24,402
Funds available for capital debt repayment.	\$ 7,524	\$24,632	\$20,152	\$ 14,026
Capital purchases.	\$ 21,000	\$22,835	\$19,325	\$ 15,741
Cash interest paid	\$ 16,830	\$20,392	\$19,127	\$ 18,491

¹ Actual amounts identified from central Illinois sample of 195 farms for 1981, 1982, and 1983; 1984 amounts are estimated.

² Actual amounts identified from central Illinois sample of 195 farms for 1981, 1982, and 1983 reduced by 10 percent; 1984 amounts are estimated.

Table 2. Returns to Livestock Enterprise Units, 1980 to 1984

Year	Farrow- to-finish hogs (per cwt)	Feeder- pig finishing (per cwt)	Feeder cattle (per cwt)	Dairy cattle (cow)	Beef herd (cow) ¹
<i>returns above cost of feed and purchased animals</i>					
1980.	\$11.11	\$ 5.96	\$ 4.77	\$1,072	\$137
1981.	11.45	4.29	3.41	1,035	1
1982.	30.43	16.40	19.65	1,043	47
1983.	12.68	5.26	16.04	885	51
1984.	16.72	10.98	20.39	995	21
5-yr. ave.	\$16.48	\$ 8.58	\$12.85	\$1,006	\$ 51
Nonfeed costs, 1980-84					
Direct cash ² . . .	\$ 6.30	\$ 4.05	\$10.25	\$ 295	\$ 29
Other cost ³ . . .	12.70	7.35	11.90	689	185
Total	\$19.00	\$11.40	\$22.15	\$ 984	\$214

¹ The feed cost for beef herds includes up to \$60 of hay equivalent from salvage roughage.

² Includes veterinary costs, utilities, fuel, equipment repair costs, and other direct cash expenses, including interest on feeder livestock, from Table 6, Farm Management Manuals, 1980-1984.

³ Estimates of annual nonfeed costs are based on enterprise cost studies of operative units, 1980-1983.

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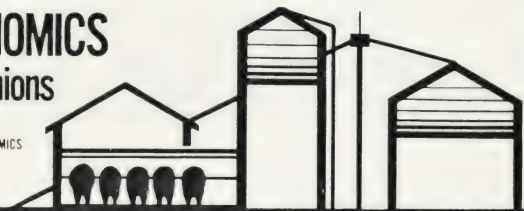
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



April 1985

85-4/Cost of Growing Corn and Soybeans, 1984

In 1984, the total cost per acre for growing corn in Illinois averaged \$592 in the northern section, \$373 in the central section, and \$306 in the southern section. The soybean costs per acre were \$308, \$296, and \$241, respectively. The total crop costs per acre were lower in southern Illinois because this region has the lowest land costs in the state (see the accompanying table). The total costs per bushel were \$2.76 to \$2.95 for corn and \$7.59 to \$8.11 for soybeans. Except for southern Illinois, the variable costs per acre increased by 1 to 8 percent from 1983. Variations in total costs were related to weather factors, yields, and to the quality of the land.

The above figures were obtained from Illinois Farm Business Records that are kept by farmers enrolled in Illinois Farm Business Farm Management Association. The samples included only farms of more than 260 acres on the more productive and nearly level soils in each area of the state; these farms are without livestock. Farms located in 22 counties north and northwest of the Illinois River are included in the sample for northern Illinois. Farms from 36 counties below a line from about Mattoon to Alton are in the sample for southern Illinois. The remaining 44 counties make up the sample for central Illinois. The sample farms averaged 636 tillable acres in northern Illinois, 620 acres in the central section, and 804 acres in southern Illinois.

This summary includes some factors that farmers consider as costs of doing business, but which some other sole-proprietor businesses may not. These factors are not used as expense items on income tax returns. Examples would include the labor charge for work done by the farm operator, a rental charge for use of all the land (both owned and rented), and an interest charge on equity in the inventories.

NONLAND COSTS

For soybeans, the soil-fertility costs were allocated on the basis of phosphorus, potassium, and lime removals, with the residual cost allocated to corn. The seed, crop, chemical, and drying expenses also included some commercial drying and storage and the estimated value of home-raised seed. The machinery repair, fuel, and hire costs were reduced for fuel-tax rebates and custom work. The labor costs included the cash value of hired labor, plus a charge for available unpaid labor at a rate of \$1,100 per month. The building and storage costs used were for repairs and depreciation only. The nonland interest charge in 1984 was 12 percent

on the average of half the inventory value of crops at the beginning and at the end of the year, plus the depreciated value of machinery and buildings, plus half the total operating expenses. Overhead costs included insurance, utilities, the farm share of automobile expenses, and miscellaneous items. No charge has been made in this analysis for management. This charge might normally be about 5 percent of the total cost per bushel or 15 cents for corn and 30 to 35 cents per bushel for soybeans.

LAND COSTS

These costs included the adjusted net rent, plus the real estate taxes paid. Net rent was represented as the average received by crop-share landlords as reported on record-keeping farms for the three-year period of 1981-1983. Caution is needed in interpreting differences in land costs between areas. In the long run, the changes in the net rent residual return to landowners should tend to equalize the total costs of production between areas.

COST PER BUSHEL

In 1984, fertilizer costs on southern Illinois farms were reduced by allowances for carry-over due to the severe drought in 1983. But yields in all areas were near the 1981-1984 average, with corn yields averaging 4 to 6 bushels above the past four-year average and soybean yields 2 to 3 bushels below.

Current corn and soybean selling prices continue to stay below the average total cost of production, especially on soybeans. We note that \$1.10 to \$1.25 a bushel for corn and \$2.00 to \$2.35 a bushel for soybeans would recover the variable cost listed in the table for an owner-operator with 1981-1984 average yields. It would take \$2.00 to \$2.34 a bushel for corn and \$4.50 to \$5.00 for soybeans to recover all nonland costs.

ADJUSTMENTS AHEAD

When average selling prices are being sustained at \$2.60 a bushel for corn and \$5.70 for soybeans, the market is signaling the need for adjustments in production costs. These adjustments come primarily through land values since land is a residual claimant of returns over the most relevant costs. Lower cash rents and lower land values are the result. The adjustment in land values tends to be complete when landowners can get a real interest rate of return of 4 to 6 percent on their land investment. This return when added to the inflation rate tends to equal returns from stocks and bonds. This explains why some landowners committed to large debt payments on land purchased in the past five to seven years are now having the greatest difficulty holding on to the land without debt management strategies to restructure their debt position.

For individual tenants and landowners to compute their break-even cost per bushel to grow corn and soybeans, they need to divide the costs and yields shown in the table as they are shared by the terms of the lease. As land values drop, the charge for the use of land tends to drop until total costs to produce corn are in line with expected price levels.

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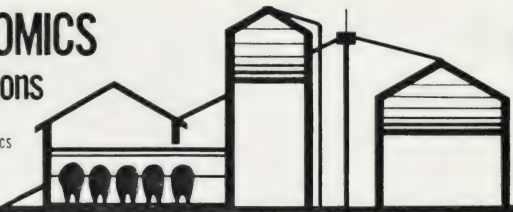
	Corn			Soybeans		
	North	Central	South	North	Central	South
Number of farms.	282	753	236	282	753	236
Acres in crop.	367	307	283	316	273	330
NONLAND COSTS						
Variable costs:						
Soil fertility	\$ 59	\$ 56	\$ 48	\$ 18	\$ 19	\$ 15
Pesticides	23	20	20	19	19	20
Seed	22	22	18	14	14	14
Drying and storage	10	11	8	3	2	2
Repairs, fuel, and hire.	32	29	33	26	25	27
Total, variable costs.	<u>\$146</u>	<u>\$138</u>	<u>\$127</u>	<u>\$ 80</u>	<u>\$ 79</u>	<u>\$ 78</u>
Percent increase from 1983	3	8	-5	1	8	-1
Other nonland costs:						
Labor.	\$ 28	\$ 30	\$ 30	\$ 27	\$ 28	\$ 28
Buildings and storage.	15	11	11	10	5	6
Machinery depreciation	37	32	37	29	26	30
Nonland interest	43	38	25	39	33	23
Overhead	13	11	9	13	11	9
Total, other costs	<u>\$136</u>	<u>\$122</u>	<u>\$112</u>	<u>\$118</u>	<u>\$103</u>	<u>\$ 96</u>
Total, nonland costs	<u>\$282</u>	<u>\$260</u>	<u>\$239</u>	<u>\$198</u>	<u>\$182</u>	<u>\$174</u>
Percent increase from 1983	-3	-1	-11	-4	0	-12
LAND COSTS						
Taxes.	\$ 20	\$ 21	\$ 10	\$ 20	\$ 21	\$ 10
Annually adjusted net rent	90	92	57	90	92	57
Total land cost.	<u>\$110</u>	<u>\$113</u>	<u>\$ 67</u>	<u>\$110</u>	<u>\$113</u>	<u>\$ 67</u>
TOTAL, ALL COSTS	\$392	\$373	\$306	\$308	\$296	\$241
1984 yields, bushels per acre. . . .	133	135	108	38	39	31
Nonland cost per bushel.	\$2.12	\$1.93	\$2.21	\$5.21	\$4.67	\$5.61
Total, all costs per bushel.	\$2.95	\$2.76	\$2.83	\$8.11	\$7.59	\$7.77
1981-1984 average yield.	129	130	102	41	41	33
Nonland cost per bushel.	\$2.19	\$2.00	\$2.34	\$4.83	\$4.44	\$5.27
Total, all costs per bushel.	\$3.04	\$2.87	\$3.00	\$7.51	\$7.22	\$7.30

NOTE: Below "dash" line, the entries shown are costs based on 1981-1984 average yields.

FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



June 1985

85-5/Farm and Family Sources and Uses of Dollars, 1981-1984, Illinois Farms

Total noncapital expenses for family living of farm operators within a group of 286 record-keeping farms in central Illinois averaged \$24,247 or \$2,021 per month per family in 1984. (See the accompanying table.) This average was 3.9 percent higher than in 1983 and 10.5 percent above the average for 1981. Another \$2,466 was used to purchase capital items, such as the personal share of the family automobile, furniture, household equipment, and the like. Thus, the grand total for living expenditures averaged \$26,713 for 1984 compared with \$26,495 for 1983, for a \$218 increase per family. Capital items decreased \$694 while noncapital expense increased \$912.

How farm operator families use their funds may depend on the levels of the net farm and non-farm incomes and the priority of the expenditures. Net farm incomes decreased slightly in the sample area in 1984 over those in 1983, but net nonfarm incomes increased to record high levels. Most of the farms in the sample were classified as grain farms, and they were located in a 15-county area bounded by Jacksonsville, Peoria, Champaign, and Mattoon. This area had good corn yields in 1984, averaging from 124 to 155 bushels per acre.

While the amount of interest paid per farm decreased from 21.2 percent of cash operating expenses in 1983 to 18.6 percent in 1984, the amount of money borrowed increased \$15,435 per farm. Farm receipts per tillable acre decreased \$5, but cash operating expenses, including interest paid, increased \$5. Efforts to meet the continued high interest payments (\$34 per tillable acre) and maintain living expenditures (\$40 per tillable acre) are indicated in the continued low levels of purchases for capital items, net new savings and investments, and the increase in net income from nonfarm sources.

Based on data recorded by the farmers and edited by the Farm Business Farm Management (FBFM) Association field staff, this sample of farms had 54 cents debt for each \$1 of farm only assets as of December 31, 1984, with machinery valued on a cost less depreciation basis. This debt to farm asset ratio is estimated to be about .47 if machinery were valued on a current market basis. If nonfarm assets were known and added to the December 31 asset values, this ratio might be expected to be somewhere between .35 and .45 for the average farm in this sample.

The farms in this sample averaged 50 acres larger than the average of all the 7,500 Illinois (FBFM) record-keeping farms. Crop yields averaged about 5 percent above those reported by the Illinois Crop Reporting Service. These factors, when combined with the fact that the area sampled had the highest corn yields in Illinois in 1984, resulted in the net farm income averaging \$4,949 above the average of all Illinois record-keeping farms. As long as this level of income persists, the average expenditures for living for farms in this sample are estimated to be 15 to 20 percent above the average of all Illinois farm operators having more than \$40,000 gross sales per farm.

In 1984, the operators of the 286 farms in the study averaged 42 years of age. They averaged 3.9 members per family, with the age of the oldest dependent child averaging 10 years. They farmed 602 tillable acres with 112 (19 percent) being owner operated. They kept records so that all sources of funds, both farm and nonfarm, balanced with all uses of funds in a complete monthly cash-flow accounting system.

The table shows a comparison of the averages for the total family-living expenses for five categories per farm for each year from 1981 to 1984. "Living expendables" include cash spent for food, operating expenses, clothing, personal items, recreation, entertainment, education, and transportation, exclusive of cash for capital improvements exceeding \$250. The value of farm-furnished meat amounted to an estimated \$200 average per farm. The use of the rented house on an estimated 40 to 50 percent of the farms in this sample is not included, since these data cover only cash outlays. The excess of nonfarm taxable income over nonfarm business expense of \$9,208 in 1984 was 34 percent of the total for all living expenses. This was 34 percent higher than in 1983. It includes dividends on stocks, interest on savings and money market funds, income from other nonfarm investments, and income from off-farm work performed by family members. A very small portion of the 1984 increase may be the result of some farm operators paying farm wives for work performed on the farm in order to reduce self-employment Social Security taxes. Interest earned and left in savings accounts not included in the cash flow is not reflected in the nonfarm income.

In this group of 286 farms, the most significant observation in 1984 is the increase in liabilities outstanding during the year and the amount of money borrowed. If the 15 percent drop in land values during the year were included, farm asset values would have dropped about \$40,000 more than the \$9,296 drop shown. The \$15,871, or \$26 per tillable acre, spent on capital purchases for machinery and equipment is 52 percent below the \$50 per acre capital purchases common before 1980.

Interest continued to be the highest single farm expense item. Interest includes that paid on operating, intermediate, and real estate debt. It has increased from 12 percent of total farm operating expense (including interest paid) in 1979 to 21 percent in 1983 and 19 percent in 1984. The \$20,651 interest payment in 1984 was 14 percent of total cash farm receipts. When interest payments begin to exceed 25 percent of the gross farm receipts, financial troubles with cash flows and ability to repay debt often result.

Estimates based on other farm record studies indicate that these operators probably paid about \$6,000 in interest on operating and machinery debt. Assuming an average outstanding interest rate of 10.5 percent would indicate that the average operator in this sample had about \$140,000 in outstanding debt on real estate. The remaining \$79,000 debt would be in operating and intermediate term debt.

The records from farm families with three to five persons were sorted into high-and-low-third categories according to the noncapital living expenses. The total living expenses for the high-third group averaged \$35,921, compared with \$19,335 for the low-third group. The high-third group farmed 153 more acres than the other group and owned 23 percent of the land farmed; the low-third group owned 18 percent of the land farmed. The larger farms in this high-third group had more income for living expenses and income tax after borrowing more money, paying more interest, and having \$1,000 more left over for net to savings and investments. But a good part of this was due to \$13,320 more net nonfarm income which provided 51 percent of the total living costs, compared to the low-third group getting only 25 percent of the living cost from nonfarm income sources. The average age of operators in the high-third group was 43 with 4.1 members in the family, compared to 38 years of age for the low-third group with 3.7 family members.

In 1984, the average operator in the all farms sample borrowed \$161 per tillable acre during the year. This compares with \$136 in 1983, the PLK feed grain program year, and \$199 per tillable acre in 1982. The business of farming is involving considerable amounts of borrowed capital in relation to annual operating expenses.

When high interest rates are combined with low prices expected over the next few years, it is important that more farmers learn how to balance and monitor their cash flow each month. Computer program assistance is now becoming available in more service centers, such as some FBFM Association District Offices. These centers are preparing to offer limited services to help farmers project monthly cash flows on computer printouts so that farmers can study and compare projections with their actual results.

Estimates now indicate that approximately 50 percent of Illinois farmers may expect their uses of cash to be greater than their sources of cash in 1985 under current price levels, unless adjustments are made in income, expenses, or amount of borrowed funds. Farmers who learn to do the kind of accounting used by those in this study will gain confidence in making financial management decisions that are timely and sound. For low equity operators, this

monitoring process may provide insights for making debt and asset liquidation adjustments before it is too late. Half of the farm operators in this sample have debt-to-asset ratios which bear watching if current low prices continue for several more years.

The data summarized in this process may also serve as a guide in budgeting allowances for family living expenses. The total family living expenses for families in this sample for each tillable acre farmed was \$44. If the \$15 per tillable acre net nonfarm income is used for living, \$29 per tillable acre would have to come from the 600 acres of corn and soybeans. Each family must determine how much each acre of crop or each litter of hogs should contribute to their family living to determine break-even prices needed.

Farm and Family Sources and Uses of Dollars, Average per Family, 1981 to 1984, and Average Living Expenditures, 1984, High-Third and Low-Third Families, 286 Record-Keeping Farms, BFHM Central Illinois

	All records, average per farm				Family of 3 to 5, 1984 ^a	
	1984	1983	1982	1981	High-third	Low-third
NUMBER IN SAMPLE	286	257	195	132	68	68
TILLABLE ACRES FARMED	602	601	606	590	682	529
ACRES OWNED	122	128	122	106	155	96
FARM ASSETS, JAN. 1 ^b	\$411,320	c	c	c	\$528,631	\$339,345
FARM ASSETS, DEC. 31 ^b	402,024	c	c	c	516,191	330,750
LIABILITIES, JAN. 1	212,048	\$227,749	\$210,515	\$170,376	295,457	174,449
LIABILITIES, DEC. 31	219,049	223,757	227,064	188,411	300,224	179,669
NET FARM INCOME	\$ 13,573	c	c	c	\$ 13,716	\$ 8,737
SOURCES OF DOLLARS						
Net nonfarm income	\$ 9,208	\$ 6,873	\$ 8,202	\$ 4,766	\$ 18,333	\$ 5,013
Money borrowed	96,895	81,460	120,741	110,019	118,528	86,144
Farm receipts	146,213	148,671	149,695	136,447	171,257	131,797
USES OF DOLLARS						
Interest paid	\$ 20,651	\$ 22,812	\$ 22,644	\$ 16,619	\$ 28,407	\$ 16,493
Cash operating expenses ..	90,621	84,680	90,769	80,284	103,672	86,867
Capital farm purchases ...	15,871	15,338	21,988	22,232	16,977	13,680
Payments on principal	90,191	85,006	104,192	91,983	114,085	81,801
Income and Social Security taxes	4,823	4,255	4,802	6,008	5,685	2,450
Net new savings and investment	3,446	-1,582	9,599	8,194	3,371	2,328
LIVING EXPENSES						
Contributions	\$ 1,121	\$ 1,154	\$ 1,095	\$ 1,136	\$ 1,796	\$ 621
Medical	3,126	2,774	2,656	2,221	3,484	2,762
Insurance, life and disability	2,197	2,104	2,021	1,863	3,067	1,293
Expendables	17,803	17,303	16,528	16,782	25,197	12,699
Total noncapital exp.	\$(24,247)	\$(23,335)	\$(22,300)	\$(21,948)	\$(33,546)	\$(17,375)
Capital	\$ 2,466	\$ 3,160	\$ 2,344	\$ 3,964	\$ 2,375	\$ 1,960
Total, living expenses	\$ 26,713	\$ 26,495	\$ 24,644	\$ 25,912	\$ 35,921	\$ 19,335
TOTAL, NONCAPITAL LIVING EXPENSES,						
PERCENT CHANGE	\$ 3.9	\$ 4.6	\$ 1.6	\$ 3.5	...	...

^aRecords were sorted into high-and-low-third categories according to total noncapital living expense.

^bModified cost basis except bare land values were held at current values between Jan. 1 and Dec. 31.

^cData not available.

D. F. Wilken
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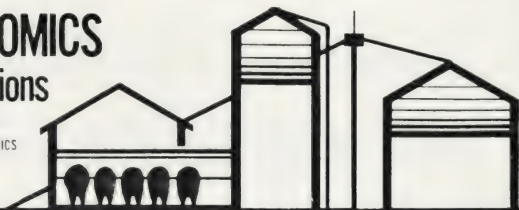


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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



July 1985

85-6/The Bankruptcy Alternative to Farm Debt Problems

As a result of financial problems, some farmers are examining the advantages and disadvantages of filing for relief under the federal Bankruptcy Code. A farmer (a person who received more than 80 percent of his or her gross income during the year preceding bankruptcy from a farming operation owned or operated by that person) cannot be forced into bankruptcy involuntarily. However, bankruptcy may provide advantages over liquidation or forfeiture of property outside of bankruptcy.

The farmer considering bankruptcy will usually evaluate two chapters of the Bankruptcy Code. Either chapter 7 or chapter 11 can be utilized by any farmer facing severe financial stress. Chapter 7 essentially provides for the termination of the farming business, the orderly liquidation of the assets owned by the debtor, and the payment of the debtor's creditors based on the priority rules of the Bankruptcy Code. Chapter 11, also known as the "reorganization chapter," provides an opportunity for the farmer-debtor to continue the farming business, avoid liquidating some or most of the farm assets, and restructure the business debt.

CHAPTER 7

Under chapter 7, a petition is filed by the farmer-debtor. When the petition is filed, all the legal actions and other harassments that have previously been started by creditors to enforce a debt or recover a claim against the farmer are stopped and cannot be further pursued in state court. This provides some immediate relief for the farmer from the pressure and confusion created by the actions of the creditors.

When a farmer files for bankruptcy, some property is exempt from creditor actions and is preserved for the farmer-debtor. Illinois law lists the following property as exempt:

1. A homestead exemption to the extent of \$7,500 in value in the farm or a lot of land and the buildings thereon used as a residence. (This exemption can be waived in the mortgage document.)
2. Certain items of personal property, such as clothing, school books, family pictures.
3. An equity interest not to exceed \$2,000 in value in any other property, such as furniture, washing machine and dryer, or refrigerator.
4. Equity interest not to exceed \$1,200 in one motor vehicle.
5. Equity interest not to exceed \$750 in implements or tools of the farmer's trade.

6. Professionally prescribed health aids.
7. Certain insurance proceeds, the right to receive Social Security, and some other special benefits.

These exemptions are available whether a person files for bankruptcy under chapter 7 or chapter 11. The amounts would be doubled if both husband and wife filed for bankruptcy. (The exemptions also protect debtors in state court actions to collect debts.)

An advantage of liquidating the assets under chapter 7 is to receive a discharge from unpaid debts. If, for example, the farmer-debtor was \$80,000 insolvent (debts exceed the value of assets) and some creditors received \$80,000 less than they were owed, these creditors could not sue the farmer-debtor for the difference. The farmer-debtor would be free of those debts and could start anew. This is a major advantage of bankruptcy versus a nonbankruptcy procedure where the creditors have not agreed to relieve the farmer from liability for any deficiency. Only an individual is eligible to receive a discharge, but a discharge can be withheld only because of dishonesty, lack of cooperation by the individual debtor, or when there was another discharge within the six previous years.

Most taxes are not discharged in bankruptcy. However, if property is sold by the trustee appointed in bankruptcy, the income tax liability for the gain on the sale of that property is the responsibility of the bankruptcy estate, not the individual who is taking bankruptcy. If there is not enough money in the estate to pay the income tax liability, this is not a personal liability of the farmer-debtor. This is another potential advantage of liquidating through a trustee in bankruptcy rather than outside of the bankruptcy procedure.

Another advantage of a chapter 7, compared to a chapter 11 bankruptcy, is that the attorney fees are substantially lower.

There are several disadvantages of using chapter 7 instead of liquidating outside of bankruptcy. One is the negative connotation of having taken bankruptcy. Some individuals feel that filing for bankruptcy may negatively affect their credit status and give them a bad name in the community. This may or may not be true. Agriculture is going through a period of time when many farmers may have to take bankruptcy. The action is not related to poor management, fraud, or misrepresentation, but is a result of a series of economic and policy factors. Also, persons who have been cooperative, have not misrepresented things to creditors, and have continued fairly good management during the period up to bankruptcy will frequently find that their ability to obtain credit has not been affected.

CHAPTER 11

Chapter 11 is primarily an attempt to reorganize both the debt associated with the farm business and the farm business itself. The objective of the reorganization is to make possible the repayment of some or all of the debt in a way that will be acceptable to at least some classes of creditors, avoid foreclosures and repossession attempts and liquidation procedures, and permit the farmer-debtor to continue to operate the business, and own the farm assets.

The key part of a chapter 11 procedure is to develop a plan for reorganization which will be acceptable to at least some of the creditors. Farmer-debtors should keep in mind that it has been quite difficult to obtain chapter 11 plan approvals. Frequently, a chapter 11 plan will provide for a reduction of cash flow problems by stretching out payments, reducing the interest rate, forgiving some debt, or some combination of these items.

Some farmers are not good candidates for successful chapter 11 plans. These are businesses that even with stretched out or reduced payments and reduced interest rates, there is little likelihood that with reasonable crop yield and price estimates the farmer will be able to provide a cash flow adequate to make the payments called for in a plan that the creditors would accept.

Good candidates for chapter 11 are debtors with too much short term financing which by agreement can be stretched out over a long period of time. Some creditors who are completely unsecured will substantially reduce (forgive) the amount of the debt. They feel that by reducing the debt and keeping the debtor in business they are more likely to get a greater percent of their debt paid than if the farming operation ceases and there is an immediate liquidation under chapter 7.

Chapter 11 does provide a negotiating "stick" to put pressure on those creditors who have been unwilling to negotiate outside of bankruptcy.

SUMMARY

The bankruptcy alternative should be examined by farmers faced with severe financial problems. Some attorneys have been able to obtain most of the protections provided by the Bankruptcy Code through a nonbankruptcy "workout agreement" among the debtor and the creditors. Acquiring approval for chapter 11 reorganization plans has been difficult, but not impossible.

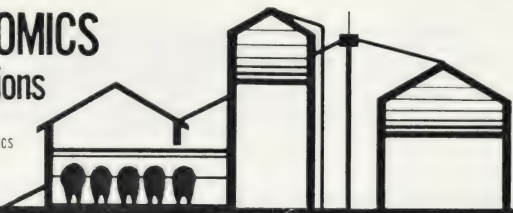
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FARM ECONOMICS

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URBANA, ILLINOIS 61801



July 1985

85-7/Farmland Values Still Declining--Affecting Both Farm Borrowers and Lenders

The U.S. Department of Agriculture just issued their annual report on the change in land values. The date of their annual survey is April 1. The USDA found the largest one-year decline (except for 1935) in history in the U.S. (-12 percent). Illinois declined 27 percent from April 1, 1984 to April 1, 1985 to an average per acre value of \$1,344. This makes the new (1977=100) Illinois index 84. The old index (1967=100) is 296. Table 1 gives the land price index from 1912 to 1985. So land prices are below the 1977 level but well above the 1967 level. This means that a farm in Illinois that would have sold in the spring of 1984 for \$2,500 per acre would have sold for only \$1,825 per acre in the spring of 1985.

Neighboring states also were in the negative column. Iowa was down 29 percent, Nebraska down 28 percent, Minnesota down 24 percent, and Indiana down 21 percent.

The Federal Reserve Bank of Chicago reported from their survey of bankers that Illinois land values in their district (from Effingham to Quincy and north) declined 19 percent from April 1, 1984 to April 1, 1985. This is 9 percent less than estimated by USDA, which includes southern Illinois. The land decline in some parts of southern Illinois may be a little greater than in central or northern Illinois, or it may be normal sampling variation. It may also be that bankers are unconsciously protecting the value of their collateral and reporting upward biased values. Also the USDA index of land prices, by our estimates, was not coming down fast enough in earlier years, so we think part of the reported decline is some needed catching up to the current situation by the USDA index. The actual decline was probably less than 27 percent. Nevertheless, the decline in land values is eroding farmers' equity and making it more difficult for them to borrow money.

In the Great Depression, land prices fell 62 percent nationally from the 1920 peak to 1933. They fell 66 percent in Illinois. The decline since 1981 nationally has been 18 percent and in Illinois over two times as much--41 percent. Illinois, along with the whole Midwest, is now much more dependent on export markets for corn and soybeans and, consequently, the value of the dollar. However, in terms of the consumer price index or deflated dollars, Illinois land prices declined about the same from 1981 to 1985 as they did from 1920 to 1933. The U.S. decline in deflated dollars is still less than in the earlier period.

BAD NEWS

At the present time there seems to be very little good news in the corn and soybean economy. Export prospects have been declining; crop prospects seem to be good in the U.S. and many other parts of the world. The prices of things farmers buy don't seem to be coming down any, and price prospects for corn and soybeans have deteriorated since last year. The average corn price received by farmers in Illinois in 1984 was \$3.05 per bushel (Illinois Crop Reporting Service) and \$7.02 per bushel for soybeans. These prices in nominal terms were as high or higher than any previous year. Yet, we had a growing number of farmers in financial difficulty because expenses have continued to climb, and the interest rate is still 50 percent above 1978. As we arrive at the halfway point through 1985, it now appears that average prices could be 35 cents less on corn and at least \$1.25 less on soybeans. The average net return to land on the better farms (soil productivity index 85-100) with a crop share lease

was about \$93 per acre in 1984. Even if we assume that most farmers are in the government corn program, we're looking at a potential decline of \$20 to \$25 per acre in net income to land. This would be a 25 percent decline in land income from 1984 to 1985. We believe that *some of this decline in income has already been discounted into the decline in land values.* However, if these kinds of commodity prices persist and farm operators begin negotiating tougher leases with landowners, as they must to pay expenses and live, then we could see some further decline in land values. This means farmers' best collateral source of the past will shrink even further.

GOOD NEWS

One very salutary aspect of the current situation is the continuing decline in interest rates. The value formula is $\text{Value} = \text{Income} \div \text{the capitalization rate or } V = 1/R$. Declining interest rates should have an upward effect on land values. Real estate mortgage rates are usually slightly above but follow closely the federal long term bond rate which was 6 3/4 percent in April of 1976 and began to rise, reaching 15.05 percent in October of 1981 during the period of time when the Federal Reserve decided to break inflation. Since then, it has bounced around a fair amount, but is now at 10.3 percent. Short term Government Bonds have fallen below 7 percent for the first time since 1978. Some expect still lower rates.

Certainly part of the expected decline in net income to land is already being discounted in the land market. The actual and psychological expectation of lower income held by most land investors (both farmers and off-farm investors) is resulting in falling land prices. The negative income effect so far has overwhelmed the positive effect of lower interest rates. We believe the decline in income is not yet over and the psychology of falling land prices has not yet run its course. However, we know there are both farmers and off-farm investors waiting in the wings for the bottom in land prices. The difficulty is that the extreme bottom will only be recognizable when looking backwards.

Prepared by John T. Scott, Jr., Professor and Extension Specialist in Land Economics

• *R. P. Kesler*

Issued by R.P. Kesler, Extension Specialist, Farm Management

Table 1. Index Numbers of Illinois Farmland Values Taken from USDA Farm Real Estate Market Developments

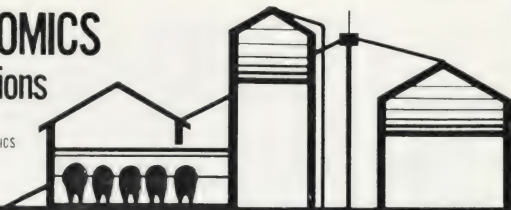
Date	Index numbers (1967=100)	Date	Index numbers (1967=100)	Date	Index numbers (1967=100)	Index numbers (1977=100)
1912	25	1946	32	1969 Mar.	109	
1913	26	1947	37	Nov.	108	
1914	27	1948	39			
1915	27	1949	41	1970 Mar.	107	
1916	27	1950	42	Nov.	107	
1917	29	1951	50	1971 Mar.	108	
1918	31	1952	54	Nov.	110	
1919	34	1953	55	1972 Mar.	116	
1920	42	1954	56	Nov.	124	
1921	40	1955	57	1973 Mar.	129	
1922	33	1956	60	Nov.	150	
1923	32	1957	65			
1924	30	1958	66	1974 Mar.	173	
1925	30	1959	71	Nov.	194	
1926	29	1960	71	1975 Mar.	209	
1927	26	1961 Mar.	69	Nov.	233	
1928	25	Nov.	70	1976 Feb.	260	
1929	25	1962 Mar.	71	Nov.	328	
1930	24	Nov.	73	1977 Feb.	353	100
1931	21	1963 Mar.	75	Nov.	372	
1932	17	Nov.	77	1978 Feb.	390	111
1933	14			Nov.	417	
1934	15	1964 Mar.	78			
1935	16	Nov.	82	1979 Feb.	441	125
1936	17	1965 Mar.	84	Nov.	459	
1937	18	Nov.	88	1980 Feb.	476	135
1938	19	1966 Mar.	94	1981 Feb.	503	143
1939	19	Nov.	101			
1940	20	1967 Mar.	100	1982 Apr.	462	131
1941	20	Nov.	104	1983	413	117
1942	23			1984	406	115
1943	24	1968 Mar.	104	1985	296	84
1944	27	Nov.	106			
1945	29					

NOTE: The annual index numbers from 1912 through 1960 are the March figures. To extend the annual series, simply use the March index to represent the year up through 1975. In 1976 the first index was taken as of February 1. The November estimate was discontinued in 1980, and a change in index number base was made in 1981 with the new base set at 100 for February 1977. The annual survey was changed from February 1 to April 1 in 1982. The 1967 index has not been published by USDA since 1980. The extension shown is calculated by John T. Scott, Jr.

FARM ECONOMICS

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July 1985

85-9/Adjustments to Meet Cash Flow Needs

Our last *Farm Economics Facts and Opinions* letter documented the facts indicating that if current prices and longtime average crop yields are confirmed for 1985, over 50 percent of Illinois farm operators may not have enough income to pay all their bills. We listed the broad alternative remedies for meeting the cash flow deficit and the priority of alternatives for reducing net worth. This letter lists a few more specific suggestions for ways to increase incomes, to trim costs of production, and to conserve on withdrawals for family living.

All the information included may not apply to all persons. Each family has its own priorities, needs, wants, and desires which would be considered in making decisions. We are aware that families with unusually high interest costs may be facing the most difficult decisions. We believe financial planning is a family affair and should involve all persons old enough to understand some of the problems associated with the supply of and demand for money.

If and when a real financial crisis exists, in all probability concessions may have to be made. We call them concessions, not sacrifices, because one can change farming methods and life-style and still lead a productive and satisfying life. People have done this in the past and are still doing it today.

Each family needs to make its own decisions. The big question may arise, "Do we want to stay in farming?" If conditions reach the stage where that is the final question and the many thoughts, ideas, and suggestions included here are too distasteful to be acceptable, the answer to this big question may be no.

But before saying no, determine the alternatives. Is a job available? Will the wage or salary put one in any better position? (Remember, most farmers are not paying house rent, a living cost for many nonfarm households that runs \$2,000 to \$4,000 per year.) Will the job require punching a time clock? Is that acceptable? The confinement of another occupation may not be palatable.

Alternatives for improving farm income are: (1) to change by improving efficiency through higher yields and lower costs or (2) to change farming organization by choosing a more profitable combination of crops and livestock, farming more acres, or intensifying livestock production. The changes in farming organization are longer run solutions which improve incomes. Attention to effective expenditures through timely applications of inputs and reduction in unnecessary costs can result in immediate improvement in income.

COMPARISON OF HIGH-THIRD VERSUS LOW-THIRD EFFICIENCY FARMS

The average outcomes between the high-third and low-third farms on the basis of return per dollar of nonfeed costs illustrate some of the opportunities that farm families have to improve incomes. (See Table 1.) Farm incomes above operating expenses vary widely between the high-third and low-third farms. Part of the difference may occur because of differences in size of farm. However, eliminating size by putting the comparison on a per acre basis still shows the wide differences. On grain farms the difference is \$115 per tillable acre; on hog farms, \$177 per tillable acre; and on dairy farms, \$195 per tillable acre. Similarly, management returns, which are the net farm operating income reduced by the depreciation charge, a charge for interest both on debt and equity capital, and for unpaid operator and family labor used, show a large magnitude of variation. Net returns varied more with gross value of production than with the operating expenditures. Gross returns tended to reflect directly the level of crop yields on all farms. There was little difference in prices received for crops.

In many cases, the levels of yields were not directly related to the level of expenditures per acre. Although it is generally believed that production function relationship of yields and physical inputs does exist, our farm record summaries have tended to show that some farmers are able to get better responses from the same expenditure on inputs. That is, the management of inputs is as important as the quantity of inputs employed. Good management means applying the same quantity of fertilizer, herbicide, or other inputs, but getting a higher yield through more timely application or obtaining the quantity of inputs at a lower cost.

The high-low comparison suggests that major improvements in net incomes will come from improved gross returns rather than cost cutting. Yet economizing on costs should not be overlooked. The secret is to cut costs only if values of yields are not less than expenditures.

IMPROVE OR ASSURE FARM INCOME PROSPECTS

With this focus in mind, the advice to managers involves steps to take to make sure that there is an effective use of cash inputs. Such steps include checking that the seedbed provides a good environment for seed germination, that the herbicide has done its job in controlling the weeds, that emergency treatments are based on threshold infestations, etc. Unfortunately, it is true that most managers know how to farm better than they actually do. In times of narrow margins, managers no longer have the luxury of letting things slip and still be able to make money.

Raise crop combinations that offer the greatest profit potential over variable costs. Compare the profitability of alternate crops. If a farmer seeded a legume crop on set-aside acres, he or she should consider opportunities for harvesting and selling hay. Remember that crop sales from wheat are available for paying bills earlier than sales from corn or soybeans.

Check the out-of-pocket expenditures required. Generally, wheat and soybeans require fewer inputs than corn. A rotation of corn after soybeans reduces the nitrogen fertilizer requirements below those for continuous corn. Also, corn following soybeans is not likely to need soil insecticide applications.

Increase the profit potential by double-cropping soybeans after wheat, particularly in southern Illinois, when the soil moisture conditions warrant the seeding. However, input requirements are higher and possible returns are uncertain; so be sure that cash for seed, herbicides, and fertilizer is not needed for other uses.

Consider raising specialty crops on contract. Many of these crops, such as seed crops, sweet corn, or peas, require little or no cash outlays beyond the expenditures for fertilizer and for tilling and seeding the crop.

Watch for extra acres or for opportunities to perform custom work to better utilize existing labor and machinery.

Consider means to insure against low yields. Specific hail and wind peril insurance and All Risk Multiple Peril Federal Crop Insurance are formal means that producers can use to reduce the crop production risks or at least the effects of risks on the farm business. Informal insurance alternatives include diversified crop production, precautionary applications of pesticides, and excessive machinery capacity.

Follow marketing strategies that insure profitable returns. Participation in the feed grain and wheat programs gives some level of income protection through the price support loan and the target-price deficiency payments. Those producers who do not elect to participate in the government programs should consider forward-pricing that portion of their crop that would insure the minimum cash flow for survival.

CUT BUSINESS EXPENDITURES

It may be helpful to review the costs of crop production and check out the opportunities to cut costs. The relative importance of expenditure items and the extent that they can be modified vary from operation to operation. Crop expenses for fertilizer, pesticide, and seed comprise 30 to 40 percent of the cash operating expenditures. Machinery repairs, fuel, and machinery hire form the next largest group of expenses. Average interest paid on operating, machinery, and real estate debt averages 16 percent of the total cash operating expense. This interest varies from farm to farm with size of the farm debt. Capital replacement expenditures can range from 0 to 25 percent of total farm expenditures.

The cost-saving ideas for the farm and farm family which offer better chances of success are the ones listed below; these ideas may be considered for both this and future growing seasons.

Cut costs of crop production. Tight operating capital is causing many farmers to cut back on some "essential" production inputs such as fertilizer, herbicides, and insecticides. But caution is advised so that income is not cut more than costs. Improved cash flow from crop production can arise either from increased yields or reduced costs. Increased yields reduce per bushel costs as long as the farmer doesn't use excessive inputs.

To minimize interest expense, prepare a detailed monthly cash flow projection that permits negotiation of a line of credit in advance. Utilize all "free" merchant credit that is available, but use loan funds to take advantage of cash discounts or avoid finance charges that exceed the interest rate charged by the ag lender. Most people have now tapped the cash value of life insurance as the last low interest rate option. On the other hand, if the operation has the income potential and the farmer can satisfy collateral requirements, it may be better to borrow additional funds than to eliminate certain operating inputs.

Consider ways to cut fertilizer costs without cutting yield, particularly on corn. The economic principle is to reduce units of inputs as long as the value of the change in output or returns is less than the reduced costs. This means delay maintenance applications of phosphorus, potassium, and lime if the soils are up to test. Be cautious in reducing nitrogen levels. Consider sidedressing nitrogen to reduce opportunities for denitrification loss and to minimize quantity applied.

Monitor weed and insect problems. Use pesticide only when economics justify, particularly in the case of postemergence treatments. Forego precautionary insurance applications for possible problems. If labor, power, and machinery are available, consider applying agriculture chemicals with your own equipment rather than custom hiring the application.

Hold down machinery costs. Cut fuel and repair bills by making only the necessary tillage operations for good weed control and seed germination. Consider repairing rather than replacing machinery. If replacement is necessary, consider alternatives to buying new machinery. Conserve capital by buying used machinery rather than new. If acreage on the farm is below the capacity of a machine, consider owning the machine jointly or trading work with a neighbor. Another alternative is to rent equipment or have the work custom hired. To avoid timeliness losses, make arrangements ahead of time to have the equipment when you need it.

Reduce grain drying costs of corn. Avoid overdrying. Harvest at lower moisture levels, and use low temperature drying methods. However, don't wait too long. Avoid excessive field losses that may occur due to lodging from the brisk fall winds.

Avoid excessive feed wastage. On livestock operations, feed is the largest cost item. Check feeders and make adjustments where necessary. Even with increases in protein supplement prices, continue to feed at least minimum levels of proteins and amino acids to balance the ration for economic rates of gain. Test forages and grains for their specific nutrient content. Use these tests to formulate low cost rations. Substitute low cost concentrate and protein feed sources for the more expensive ingredient sources.

REDUCE LAND COSTS

Lower market prices for grains mean tenants should negotiate for lower cash rents. Adjustments also may need to be made in the terms of share lease arrangements. In recent years, on some farms, tenants' share of cash production costs have increased to a point that with lower market prices, there is little or no return for their labor and management.

REDUCE FAMILY LIVING COSTS

Record and study family living costs. The low-third cost families in 1984, in a sample of 203 central Illinois farm families having three to five members in the family, average \$17,000 total living cost compared with \$33,000 for the high-third cost group. Selected cost-trimming ideas may include the following.

Delay purchase or repair of personal capital items. Repairing a washing machine may cost \$100, a new one may cost \$400. Reduce food and clothing expenditures. Eat out less. Set only special occasions for eating out. Buy economy foods for home use. Watch for and buy sale items. Shop for groceries on a full stomach. Cut beverages to a minimum; water can be more healthful and cheaper. Reduce impulse buying by carrying only a small amount of cash in the pocket (it works).

Cut utility bills. In the winter check storm doors and windows; use plastic if needed. Keep the furnace or heater in good shape. Keep doors and windows closed. Reduce the thermostat to 68° in the winter. Turn the thermostat down to 60° so that the furnace doesn't run on cool summer nights (homes without air conditioners). Substitute a 1/6 HP fan for the air conditioner at temperatures up to 85 to 90°. Turn off lights, TV, and other equipment when not in use. Keep the coils on refrigerator units clean. Use 40 watt bulbs in multiple light units. Watch the length of long distance phone calls. Use a kitchen timer. Call between 11:00 p.m. Saturday and 5:00 p.m. Sunday or at night for lower rates. Reduce medical and insurance

expenditures. Avoid accidents; play it safe. Anticipate what accident could happen. Increase deductibles and carry insurance for major medical events. Consider substituting term insurance for ordinary life.

Look for lower cost forms of entertainment and recreation. Does a camper really save money? On vacation trips, bring lunch or picnic when possible, and look for economy motels. Picnics can be fun and less expensive.

OTHER CONSIDERATIONS

Finally, don't overlook the opportunities for increasing income. Nonfarm full- or part-time employment may be considered. Such employment includes: working at a restaurant, hospital, or nursing home; babysitting; being a receptionist; sewing; house, business, or office cleaning; being a dishwasher or cook; painting or decorating; working as a typist, janitor (night shifts), cashier, or store clerk; selling seeds, cosmetics, insurance, cars, etc.

Hopefully, this list of ideas for trimming costs or increasing income may be useful for farm families finding themselves having difficulty meeting their cash flow needs. Our budgets projecting incomes for the next few years indicate that more farm families may be facing realities unknown to them during their lifetimes. Good farm records with complete and accurate production and financial facts can help provide confidence in making decisions for each family involved.

Prepared by R.A. Hinton and D.F. Wilken, Extension Specialists, Farm Management, and C.E. Cagley, State Coordinator, Illinois FBFM Association

R. A. Hinton

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Table 1. Performance Levels of High-Third Versus Low-Third Farm Returns per Dollar Nonfeed Costs, by Type of Farm, Northern Illinois, 1984

	Grain		Hog		Dairy	
	High 1/3	Low 1/3	High 1/3	Low 1/3	High 1/3	Low 1/3
Tillable acres	390	379	365	375	303	317
Soil productivity rating	83	82	79	78	75	71
Cwt pork produced	193	59	3,284	2,135	230	228
No. dairy cows	0	0	0	2	67	66
Production per \$1 nonfeed cost	\$.98	\$.66	\$1.04	\$.66	\$1.01	\$.60
Crop yields, bu per acre:						
Corn	143	122	136	118	115	104
Soybeans	43	35	44	35	49	29
Crop prices received:						
Corn	\$3.00	\$3.07	\$2.93	\$2.98	\$2.75	42.77
Soybeans	7.59	7.43	7.49	7.45	6.04	6.90
Return per \$100 feed fed	\$ 112	\$ 110	\$ 158	\$ 123	\$ 200	\$ 156
Per acre values:						
Production	\$ 368	\$ 267	\$ 523	\$ 330	\$ 550	\$ 386
Cash expenses	159	173	215	199	232	263
Net cash income	209	94	308	131	318	123
Depreciation and other costs	213	233	288	298	314	383
Net management returns	-5	-139	20	-167	4	-260

SOURCE: *Hi-Lo Third Size-Type Standards 1984*, Illinois Farm Business Farm Management Association in cooperation with University of Illinois, Department of Agricultural Economics, Urbana-Champaign, March 1985.

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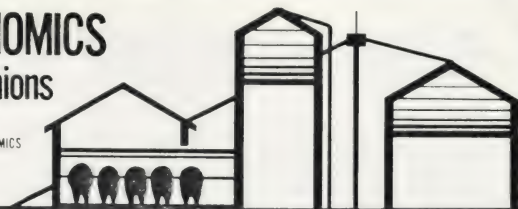


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85-8/Projecting Income and Cash Flow Needs-Basis for Farm Adjustments

When the sums of the net farm and net nonfarm incomes are less than the funds needed for living and taxes, families start drawing on their net worth (equity capital) in the business to maintain their living expenses. They do this by "living off their depreciation" as they postpone replacement of machines and other capital items. Some may use savings or borrow funds for living and taxes.

Recent newsletters *85-3/Financial Position of Illinois Farm Operators* and *85-5/Farm and Family Sources and Uses of Dollars, 1981-1984, Illinois Farms* have documented these changes in the financial situation on farms. Nearly 50 percent of the record-keeping farms had net farm income below \$10,000 in 1984. The uses of income for family living continue at levels beyond the sum of farm and nonfarm income sources, so that the average farm operator has experienced a decline in cost basis net worth of \$7,000 per year since 1980.

These facts prompt us to project 1985 income and expense for the most common size of grain farm and to suggest adjustments operators need to be considering.

INCOME SHORTAGE RELATED TO AMOUNT OF LIABILITY

The budgets of a 550 acre grain farm for a full-tenant operator and for a part-owner operator shown in Table 1 serve to illustrate the level of farm income expected to be earned in 1985. The relation of income earned and income needs anticipated on these grain farm operators under increasing amounts of liability is shown in Table 2. The first budget is for a 550 acre full-tenant operator farming under a 50-50 crop-share lease. The total farm income above all cash costs for the full-tenant operator is calculated to be \$38,500. The yields and costs used are those taken from the average of 500 central Illinois grain farms. The average selling prices are \$2.60 per bushel for corn and \$6.00 for soybeans.

When the estimated income above all cash cost is analyzed in relation to the income needs under three levels of outstanding loan balances for operating and intermediate term loans, you will note the bottom line net income above needs is short \$5,000 to \$14,000 at average yields and prices for full-tenant operators (see Table 2). Income need includes debt service, capital replacements, and family living, including income and Social Security taxes. Operating loan interest is computed at 13 percent. Level of average outstanding operating loan balance is assumed to be zero for the low level, \$25,000 for the medium level, and \$35,000 for the high level in the table. Interest and principal payments on the intermediate term loan balances of \$20,000 for the medium level and of \$50,000 for the high level are similarly calculated. Both the medium and high level outstanding loan operators are already "living off depreciation" by reducing capital purchases by an amount equal to their intermediate

principal payments. The greater the debt and interest payments, the greater the income shortage shown on the bottom line in the table. Only if gross incomes increase by 25 percent through either higher prices or higher yields will the incomes meet average income needs.

The budget for the part-owner is for the same sized farm with 100 acres owned and 450 acres rented on a 50-50 crop-share lease. With yields, prices, and costs similar to those used for the full-tenant operator, the estimated income above costs excluding interest and depreciation is \$47,750. With \$92,500 of operating and intermediate loans outstanding, plus a \$1,200 per acre real estate loan at 13 percent on the 100 acres owned, there is a \$19,750 shortage of farm income to meet the income needs of the part-owner (at average prices and yields).

At average performance levels of our farm record keepers and at the expected prices for farm commodities in 1985, many farm operators could be facing the income shortages illustrated in Table 2. The income shortages will be greater for farmers with larger outstanding loan balances. The magnitude of the shortage on any farm will also vary with the actual yield and price outcomes. A 25 percent increase in yields or prices could eliminate the projected income shortage for all loan balance situations in the examples. However, the law of averages suggests that the next few years could also bring some offsetting yield declines.

Little change in prices of commodities or inputs is expected in the next three years. The University of Illinois Extension economists' consensus on prices at this time for the 1986-1990 period to use for budgeting are \$2.65 for corn, \$6.40 for soybeans, \$3.30 for wheat, \$50 for hogs, and \$12.50 for milk. After analyzing net income in relation to living cost needs, sources of nonfarm income, and size of net worth, it may be necessary to focus on some strategies to help balance the need for income with the sources of income.

ADJUSTMENTS TO LOWER FARM INCOMES

Thus, as long as we expect the present cost-price relationships to continue, we could expect that on the average, all farmers will be facing incomes below those earned in previous years. The alternatives to consider in reacting to the low incomes for the higher levels of financial leverage, as well as the debt-free example, are really the same. The broad question to be addressed first is, "Do I think that this level of returns or the potential for improved returns is great enough that I want to continue farming?" The magnitude of the cash flow deficit may influence the response to this question. If my decision is in the affirmative, that "Yes, I want to continue to farm," then basically three remedies are looked to in meeting this cash flow deficit. (A deficit that is being caused largely by low earnings in agriculture.)

The remedies include meeting the cash flow deficit by (1) increasing net farm income, (2) increasing nonfarm income, and (3) reducing net worth through liquidation of some assets or increasing liabilities (or a combination of the two).

The alternatives in reducing net worth may be listed by priority to some extent in the following sequence: (1) reduce savings or other liquid assets; (2) liquidate certain personal or nonfarm assets (i.e., boat, camper, etc.); (3) liquidate certain nonessential business assets (i.e., excess machinery, maybe even a tract of land); or (4) increase liabilities, being especially concerned about repayment terms being properly structured.

Keep in mind that the first three items in this list may have income tax consequences which could nullify some of their benefits. The last item could have a negative impact on earnings through reduction in productivity or increased interest expense.

It should not be automatically assumed that farm income cannot be increased, for to do so is to assume that the perfect combination of inputs for that business is present. By now farm operators need to realize that the key financial statements--the income statement (profit and loss), balance sheet, and cash flow statements--are an absolute necessity before beginning to consider alternatives in reacting to the low incomes. Operators will want the best financial facts available. Professional assistance is available from Extension advisers, FBFM field staff, ag lenders, and private consultants. Farm record-keeping programs such as that cosponsored by the Illinois FBFM Association and the University of Illinois Cooperative Extension Service have been found helpful for getting the financial facts needed. Our next letter will discuss financial management options that may be available in trying to adjust costs.

Prepared by R.A. Hinton and D.F. Wilken, Extension Specialists, Farm Management, and C.E. Cagley, State Coordinator, FBFM

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Table 1. 1985 Budget of Part-Owner and Tenant Operators' Net Income Above Cash Operating Expenses for 550 Acre Farm

	Owned acres		50-50 rented acres		50-50 tenant operators		Part-owner operators	
	Corn	Soybeans	Corn	Soybeans	Total	Total	Total	Total
Acres in crop, 50-50 tenant	..	..	300	250	550			
Part-owner	50	50	250	200			550	
	<i>per acre in crop</i>							
Farm income:								
Yield, bu	135	45	67	22				
Price per bu	\$2.60	\$6.00	\$2.60	\$6.00				
Total crop value	\$351	\$270	\$174	\$132	\$85,200	\$100,950		
Farm operating expenses:								
Fertilizer	\$ 55	\$ 20	\$ 28	\$ 10	\$10,900	\$ 12,750		
Pesticides	18	20	9	10	5,200	6,150		
Seed	20	12	10	6	4,500	5,300		
Drying and storage	12	4	7	2	2,600	2,950		
Mchy. repairs, fuel, and hire	32	27	32	27	16,350	16,350		
Hired labor	6	6	6	6	3,300	3,300		
Insurance, overhead, and misc.	11	11	7	7	3,850	4,250		
Taxes	22	22	..	..	..	2,200		
Total operating expense	\$176	\$122	\$ 99	\$ 68	\$46,700	\$ 53,250		
Income above costs, not including interest or depreciation	\$175	\$148	\$ 75	\$ 64	\$38,500	\$ 47,750		

Table 2. Relation of Income Above Income Needs to Level of Outstanding Liabilities on Tenant and Part-Owner Operated Grain Farm

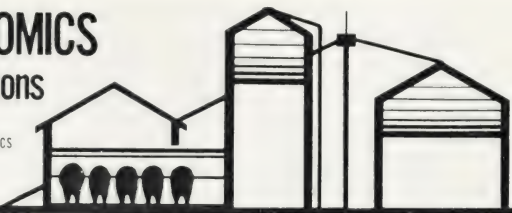
	Outstanding loan level			
	Low 50-50 tenant	Medium 50-50 tenant	High 50-50 tenant	High part-owner
Quantity of outstanding credit:				
Operating loan	0	\$25,000	\$35,000	\$42,000
Intermediate loan	0	20,000	50,000	50,000
Long term loan	0	0	0	120,000
Cash income available at:				
Average yields and prices	\$38,500	\$38,500	\$38,500	\$47,750
25% higher yields or prices	59,800	59,800	59,800	73,000
Income needs:				
Debt service				
Interest	0	\$ 5,850	\$11,500	\$28,000
Principal	0	5,000	10,000	10,000
Machinery replacement purchases	\$16,500	11,500	6,500	6,500
Family living and taxes	27,000	26,000	24,500	23,000
Total	\$43,500	\$48,350	\$52,500	\$67,500
Net income above needs at:				
Average yields and prices	\$-5,000	\$-9,850	\$-14,000	\$-19,750
25% higher gross income ^a	10,000	5,800	1,900	0

^aChanges in net income above needs from the average are less than changes in gross income because of greater Social Security and income tax payments.

FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



July 1985

85-9/Adjustments to Meet Cash Flow Needs

Our last *Farm Economics Facts and Opinions* letter documented the facts indicating that if current prices and longtime average crop yields are confirmed for 1985, over 50 percent of Illinois farm operators may not have enough income to pay all their bills. We listed the broad alternative remedies for meeting the cash flow deficit and the priority of alternatives for reducing net worth. This letter lists a few more specific suggestions for ways to increase incomes, to trim costs of production, and to conserve on withdrawals for family living.

All the information included may not apply to all persons. Each family has its own priorities, needs, wants, and desires which would be considered in making decisions. We are aware that families with unusually high interest costs may be facing the most difficult decisions. We believe financial planning is a family affair and should involve all persons old enough to understand some of the problems associated with the supply of and demand for money.

If and when a real financial crisis exists, in all probability concessions may have to be made. We call them concessions, not sacrifices, because one can change farming methods and life-style and still lead a productive and satisfying life. People have done this in the past and are still doing it today.

Each family needs to make its own decisions. The big question may arise, "Do we want to stay in farming?" If conditions reach the stage where that is the final question and the many thoughts, ideas, and suggestions included here are too distasteful to be acceptable, the answer to this big question may be no.

But before saying no, determine the alternatives. Is a job available? Will the wage or salary put one in any better position? (Remember, most farmers are not paying house rent, a living cost for many nonfarm households that runs \$2,000 to \$4,000 per year.) Will the job require punching a time clock? Is that acceptable? The confinement of another occupation may not be palatable.

Alternatives for improving farm income are: (1) to change by improving efficiency through higher yields and lower costs or (2) to change farming organization by choosing a more profitable combination of crops and livestock, farming more acres, or intensifying livestock production. The changes in farming organization are longer run solutions which improve incomes. Attention to effective expenditures through timely applications of inputs and reduction in unnecessary costs can result in immediate improvement in income.

COMPARISON OF HIGH-THIRD VERSUS LOW-THIRD EFFICIENCY FARMS

The average outcomes between the high-third and low-third farms on the basis of return per dollar of nonfeed costs illustrate some of the opportunities that farm families have to improve incomes. (See Table 1.) Farm incomes above operating expenses vary widely between the high-third and low-third farms. Part of the difference may occur because of differences in size of farm. However, eliminating size by putting the comparison on a per acre basis still shows the wide differences. On grain farms the difference is \$115 per tillable acre; on hog farms, \$177 per tillable acre; and on dairy farms, \$195 per tillable acre. Similarly, management returns, which are the net farm operating income reduced by the depreciation charge, a charge for interest both on debt and equity capital, and for unpaid operator and family labor used, show a large magnitude of variation. Net returns varied more with gross value of production than with the operating expenditures. Gross returns tended to reflect directly the level of crop yields on all farms. There was little difference in prices received for crops.

In many cases, the levels of yields were not directly related to the level of expenditures per acre. Although it is generally believed that production function relationship of yields and physical inputs does exist, our farm record summaries have tended to show that some farmers are able to get better responses from the same expenditure on inputs. That is, the management of inputs is as important as the quantity of inputs employed. Good management means applying the same quantity of fertilizer, herbicide, or other inputs, but getting a higher yield through more timely application or obtaining the quantity of inputs at a lower cost.

The high-low comparison suggests that major improvements in net incomes will come from improved gross returns rather than cost cutting. Yet economizing on costs should not be overlooked. The secret is to cut costs only if values of yields are cut less than expenditures.

IMPROVE OR ASSURE FARM INCOME PROSPECTS

With this focus in mind, the advice to managers involves steps to take to make sure that there is an effective use of cash inputs. Such steps include checking that the seedbed provides a good environment for seed germination, that the herbicide has done its job in controlling the weeds, that emergency treatments are based on threshold infestations, etc. Unfortunately, it is true that most managers know how to farm better than they actually do. In times of narrow margins, managers no longer have the luxury of letting things slip and still be able to make money.

Raise crop combinations that offer the greatest profit potential over variable costs. Compare the profitability of alternate crops. If a farmer seeded a legume crop on set-aside acres, he or she should consider opportunities for harvesting and selling hay. Remember that crop sales from wheat are available for paying bills earlier than sales from corn or soybeans.

Check the out-of-pocket expenditures required. Generally, wheat and soybeans require fewer inputs than corn. A rotation of corn after soybeans reduces the nitrogen fertilizer requirements below those for continuous corn. Also, corn following soybeans is not likely to need soil insecticide applications.

Increase the profit potential by double-cropping soybeans after wheat, particularly in southern Illinois, when the soil moisture conditions warrant the seeding. However, input requirements are higher and possible returns are uncertain; so be sure that cash for seed, herbicides, and fertilizer is not needed for other uses.

Consider raising specialty crops on contract. Many of these crops, such as seed crops, sweet corn, or peas, require little or no cash outlays beyond the expenditures for fertilizer and for tilling and seeding the crop.

Watch for extra acres or for opportunities to perform custom work to better utilize existing labor and machinery.

Consider means to insure against low yields. Specific hail and wind peril insurance and All Risk Multiple Peril Federal Crop Insurance are formal means that producers can use to reduce the crop production risks or at least the effects of risks on the farm business. Informal insurance alternatives include diversified crop production, precautionary applications of pesticides, and excessive machinery capacity.

Follow marketing strategies that insure profitable returns. Participation in the feed grain and wheat programs gives some level of income protection through the price support loan and the target-price deficiency payments. Those producers who do not elect to participate in the government programs should consider forward-pricing that portion of their crop that would insure the minimum cash flow for survival.

CUT BUSINESS EXPENDITURES

It may be helpful to review the costs of crop production and check out the opportunities to cut costs. The relative importance of expenditure items and the extent that they can be modified vary from operation to operation. Crop expenses for fertilizer, pesticide, and seed comprise 30 to 40 percent of the cash operating expenditures. Machinery repairs, fuel, and machinery hire form the next largest group of expenses. Average interest paid on operating, machinery, and real estate debt averages 16 percent of the total cash operating expense. This interest varies from farm to farm with size of the farm debt. Capital replacement expenditures can range from 0 to 25 percent of total farm expenditures.

The cost-saving ideas for the farm and farm family which offer better chances of success are the ones listed below; these ideas may be considered for both this and future growing seasons.

Cut costs of crop production. Tight operating capital is causing many farmers to cut back on some "essential" production inputs such as fertilizer, herbicides, and insecticides. But caution is advised so that income is not cut more than costs. Improved cash flow from crop production can arise either from increased yields or reduced costs. Increased yields reduce per bushel costs as long as the farmer doesn't use excessive inputs.

To minimize interest expense, prepare a detailed monthly cash flow projection that permits negotiation of a line of credit in advance. Utilize all "free" merchant credit that is available, but use loan funds to take advantage of cash discounts or avoid finance charges that exceed the interest rate charged by the ag lender. Most people have now tapped the cash value of life insurance as the last low interest rate option. On the other hand, if the operation has the income potential and the farmer can satisfy collateral requirements, it may be better to borrow additional funds than to eliminate certain operating inputs.

Consider ways to cut fertilizer costs without cutting yield, particularly on corn. The economic principle is to reduce units of inputs as long as the value of the change in output or returns is less than the reduced costs. This means delay maintenance applications of phosphorus, potassium, and lime if the soils are up to test. Be cautious in reducing nitrogen levels. Consider sidedressing nitrogen to reduce opportunities for denitrification loss and to minimize quantity applied.

Monitor weed and insect problems. Use pesticide only when economics justify, particularly in the case of postemergence treatments. Forego precautionary insurance applications for possible problems. If labor, power, and machinery are available, consider applying agriculture chemicals with your own equipment rather than custom hiring the application.

Hold down machinery costs. Cut fuel and repair bills by making only the necessary tillage operations for good weed control and seed germination. Consider repairing rather than replacing machinery. If replacement is necessary, consider alternatives to buying new machinery. Conserve capital by buying used machinery rather than new. If acreage on the farm is below the capacity of a machine, consider owning the machine jointly or trading work with a neighbor. Another alternative is to rent equipment or have the work custom hired. To avoid timeliness losses, make arrangements ahead to have the equipment when you need it.

Reduce grain drying costs of corn. Avoid overdrying. Harvest at lower moisture levels, and use low temperature drying methods. However, don't wait too long. Avoid excessive field losses that may occur due to lodging from the brisk fall winds.

Avoid excessive feed wastage. On livestock operations, feed is the largest cost item. Check feeders and make adjustments where necessary. Even with increases in protein supplement prices, continue to feed at least minimum levels of proteins and amino acids to balance the ration for economic rates of gain. Test forages and grains for their specific nutrient content. Use these tests to formulate low cost rations. Substitute low cost concentrate and protein feed sources for the more expensive ingredient sources.

REDUCE LAND COSTS

Lower market prices for grains mean tenants should negotiate for lower cash rents. Adjustments also may need to be made in the terms of share lease arrangements. In recent years, on some farms, tenants' share of cash production costs have increased to a point that with lower market prices, there is little or no return for their labor and management.

REDUCE FAMILY LIVING COSTS

Record and study family living costs. The low-third cost families in 1984, in a sample of 203 central Illinois farm families having three to five members in the family, average \$17,000 total living cost compared with \$33,000 for the high-third cost group. Selected cost-trimming ideas may include the following.

Delay purchase or repair of personal capital items. Repairing a washing machine may cost \$100, a new one may cost \$400. Reduce food and clothing expenditures. Eat out less. Set only special occasions for eating out. Buy economy foods for home use. Watch for and buy sale items. Shop for groceries on a full stomach. Cut beverages to a minimum; water can be more healthful and cheaper. Reduce impulse buying by carrying only a small amount of cash in the pocket (it works).

Cut utility bills. In the winter check storm doors and windows; use plastic if needed. Keep the furnace or heater in good shape. Keep doors and windows closed. Reduce the thermostat to 68° in the winter. Turn the thermostat down to 60° so that the furnace doesn't run on cool summer nights (homes without air conditioners). Substitute a 1/6 HP fan for the air conditioner at temperatures up to 85 to 90°. Turn off lights, TV, and other equipment when not in use. Keep the coils on refrigerator units clean. Use 40 watt bulbs in multiple light units. Watch the length of long distance phone calls. Use a kitchen timer. Call between 11:00 p.m. Saturday and 5:00 p.m. Sunday or at night for lower rates. Reduce medical and insurance

expenditures. Avoid accidents; play it safe. Anticipate what accident could happen. Increase deductibles and carry insurance for major medical events. Consider substituting term insurance for ordinary life.

Look for lower cost forms of entertainment and recreation. Does a camper really save money? On vacation trips, bring lunch or picnic when possible, and look for economy motels. Picnics can be fun and less expensive.

OTHER CONSIDERATIONS

Finally, don't overlook the opportunities for increasing income. Nonfarm full- or part-time employment may be considered. Such employment includes: working at a restaurant, hospital, or nursing home; babysitting; being a receptionist; sewing; house, business, or office cleaning; being a dishwasher or cook; painting or decorating; working as a typist, janitor (night shifts), cashier, or store clerk; selling seeds, cosmetics, insurance, cars, etc.

Hopefully, this list of ideas for trimming costs or increasing income may be useful for farm families finding themselves having difficulty meeting their cash flow needs. Our budgets projecting incomes for the next few years indicate that more farm families may be facing realities unknown to them during their lifetimes. Good farm records with complete and accurate production and financial facts can help provide confidence in making decisions for each family involved.

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Table 1. Performance Levels of High-Third Versus Low-Third Farm Returns per Dollar Nonfeed Costs, by Type of Farm, Northern Illinois, 1984

	Grain		Hog		Dairy	
	High 1/3	Low 1/3	High 1/3	Low 1/3	High 1/3	Low 1/3
Tillable acres	390	379	365	375	303	317
Soil productivity rating	83	82	79	78	75	71
Cwt pork produced	193	59	3,284	2,135	230	228
No. dairy cows	0	0	0	2	67	66
Production per \$1 nonfeed cost	\$.98	\$.66	\$1.04	\$.66	\$1.01	\$.60
Crop yields, bu per acre:						
Corn	143	122	136	118	115	104
Soybeans	43	35	44	35	49	29
Crop prices received:						
Corn	\$3.00	\$3.07	\$2.93	\$2.98	\$2.75	42.77
Soybeans	7.59	7.43	7.49	7.45	6.04	6.90
Return per \$100 feed fed	\$ 112	\$ 110	\$ 158	\$ 123	\$ 200	\$ 156
Per acre values:						
Production	\$ 368	\$ 267	\$ 523	\$ 330	\$ 550	\$ 386
Cash expenses	159	173	215	199	232	263
Net cash income	209	94	308	131	318	123
Depreciation and other costs	213	233	288	298	314	383
Net management returns	-5	-139	20	-167	4	-260

SOURCE: *Hi-Lo Third Size-Type Standards 1984*, Illinois Farm Business Farm Management Association in cooperation with University of Illinois, Department of Agricultural Economics, Urbana-Champaign, March 1985.

Cooperative Extension Service
United States Department of Agriculture
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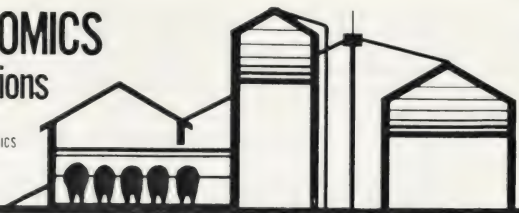


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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



July 1985

85-10/Illinois Farm Property Taxes

A number of significant economic events in and outside agriculture are likely to be remembered for the year 1984. One result of the weak agricultural economy, marking 1984 as a watershed in Illinois property taxation, is the reversal of the long-standing trend of ever increasing property taxes on Illinois farmland. Poor commodity prices, high interest rates, and other factors that have caused a decline in the market value of farmland in Illinois and throughout the Cornbelt have placed similar downward pressures on the use-value assessments on farmland and on the level of property taxes.

Property taxes on Illinois grain farms declined an average of 12 cents per acre, from \$15.75 per acre in 1983 to \$15.63 in 1984. The average statewide decline reverses a trend of tax increases that has persisted for several decades. The per acre property taxes for a sample of Illinois grain farms for the 1973 to 1984 period are shown in Figure 1. Also included in Figure 1 are data for the sample farms in the northern 68 counties and the southern 34 counties. In 1984 there were 1,871 grain farms in the sample, containing 1.3 million acres of land. Because the data are for grain farms only, the tax levels are representative of taxes on farmland in Illinois. Per acre taxes for livestock farms would be higher because building investments raise total farm assessed valuation. For example, the average 1984 per acre property tax levied on northern Illinois hog farms with fewer than 500 acres was \$22.

The historical difference between per acre property tax levels in southern and northern Illinois continues. While slight property tax declines were experienced in both northern and southern regions of the state between 1983 and 1984, the per acre tax in southern Illinois counties was 47 percent of the average tax reported by northern Illinois farms in 1984; the drop in the northern counties was 1.5 percent while a 0.3 percent decline was seen in southern Illinois. More explicitly, the 1984 northern Illinois property tax on grain farms was \$19.61 per acre compared to an average of \$9.23 reported for southern Illinois. This difference is primarily a result of lower average soil productivity in the south, causing the use-value assessments on farms in that region, on average, to be less than assessments on northern Illinois farms. Without dramatically higher property tax rates in southern counties, property taxes in southern Illinois will continue to be less than in the northern region.

Another measure of the burden of the property tax on Illinois farms is the effective tax rate, which compares property taxes to land values. These rates for the period 1973 to 1984 are presented in Table 1. Higher effective rates in 1983 reversed a long trend of declining effective property tax rates on Illinois farmland. Although property taxes declined slightly from 1983 to 1984, the market value of farms in

Illinois dropped faster resulting in a 28 percent increase in the effective tax rate. The rate in southern Illinois increased faster relative to the rate for northern Illinois, because, in part, the property tax declined less from 1983 to 1984 in southern counties. The last column in Table 1 shows the percentage of landlord crop-share rent used to pay property taxes. The percentage was 18.71 in 1984.

ASSESSMENTS, TAXES, SCHOOLS AND ROADS

Property taxes paid in 1984 are based on assessments set in 1983 and are the revenues used by schools and other local governments to finance services during the 1985 fiscal year. Lower farm assessments in 1983 are a primary cause for the slight drop in average per acre taxes for 1984. Poor economic conditions in Illinois agriculture resulted in a considerable drop in the farm use-value assessments for 1984. This decline would have caused a substantial fiscal shock to school districts, road districts, and other rural governments providing important services to Illinois farmers and farm communities. The severe drop in assessed values on farms was lessened by 1984 legislation limiting the change in farm assessments in any county to ten percent from one year to the next. Thus, the decline in farm assessments between 1983 and 1984 was limited to ten percent in most Illinois counties. Property taxes paid by Illinois farmland owners in 1985 are expected to be lower than 1984 taxes, but not by the ten percent decline in assessments experienced in most areas. Tax rate increases approved by voters or adopted by school boards and other locally elected officials to maintain needed revenues to finance services will offset some of the decline in assessments.

Tax rates on farm property in Illinois continue to climb. Current data show average rates of 4.66 percent, 4.72 percent, and 4.85 percent for the years 1980, 1981, and 1982, respectively. These increases occurred prior to the drop in assessed valuation on farms. Tax rates for recent years are expected to be higher as local governments offset lower tax bases with higher rates. Average tax rates levied on farm property vary substantially among Illinois counties. The highest rate outside of Cook County is in Franklin County, with 6.23 percent in 1982; the lowest rate is in Jasper County with 3.46 percent. As shown in Table 2, 43 county average farm property tax rates are between 4.51 percent and 5 percent, with another 26 counties reporting average rates of between 5.01 and 5.50 percent for 1982.

About 16 percent of all property taxes collected outside Cook County in Illinois are paid by farm owners. This compares to 16 percent paid by commercial property, ten percent by industrial property, and 58 percent by owners of residential property. Local schools, of course, are the major user of property taxes on farm property as well as other property in Illinois. For 1982, schools spent 75.8 percent of the \$439 million in farm property taxes collected outside Cook County. Debate in the Illinois General Assembly on school finance reform includes discussion about the heavy reliance of Illinois school districts on the property tax to pay for local school services.

Another critical service relying heavily on property tax revenues are rural township roads. In 1982 about 9 cents out of every farm property tax dollar collected was used by road districts and townships to maintain over 70,000 miles of rural roads and over 11,000 rural bridges. These are critical in the movement of inputs to farms and in the marketing of corn and soybeans. County government used 11 cents from each farm property tax dollar to support sheriffs offices, county roads, the courts and jails, and other county services.

OUTLOOK

The weakened agricultural economy, placing financial stress on many Illinois farm families, reversed the traditional upward trend in Illinois farm property taxes in 1984. Although tax rates increased, it was not enough to maintain average tax levels. While the farm property tax base reflects the economic conditions in agriculture, the drop in tax receipts places fiscal pressure on rural schools and other local governments. The outlook for the agricultural sector is not very optimistic, at least for the next two or three years. This suggests the long standing conditions of growth in farm property assessments and the accompanied increase in tax revenues for schools and other units of government will not return. Constant or falling property taxes on farms will likely prevail until the farm economy recovers or policies dramatically increase tax rates. Lower property taxes may provide some limited relief to financially stressed farmland owners, but at the expense of budgets for local schools, rural roads, police protection, and so forth. Reduced fiscal capacity for rural Illinois schools will be a major issue state government and local school boards will have to consider as school finance reforms, district consolidation and reorganization, and other policy options are evaluated in the months ahead.

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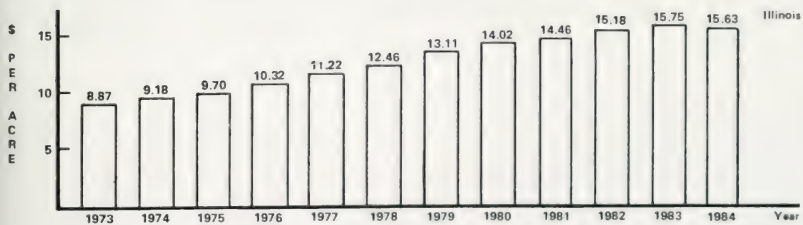
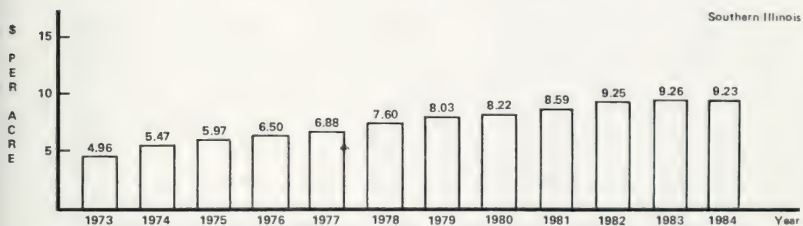
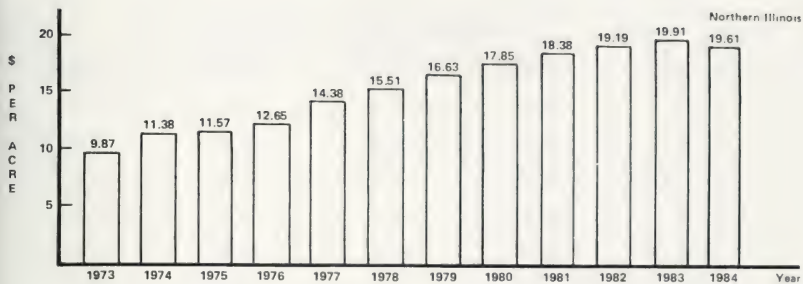


Figure 1. Per acre property taxes on Illinois farm real estate, 1973-1984.

Table 1. *Effective Property Tax Rates on Illinois Farms, 1973-84*

Tax Year	Effective tax rate (percentage) ^a			Property taxes as percent of land rent ^b
	Northern Illinois	Southern Illinois	Illinois	
1973	1.57	1.26	1.47	11.70
1974	1.61	1.31	1.42	9.93
1975	1.12	0.99	1.11	13.49
1976	1.02	0.88	0.96	11.74
1977	0.93	0.75	0.86	15.00
1978	0.74	0.62	0.72	15.29
1979	0.72	0.59	0.68	14.18
1980	0.69	0.54	0.65	15.11
1981	0.60	0.49	0.56	17.41
1982	0.58	0.51	0.56	18.33
1983	0.66	0.56	0.64	16.79
1984	0.85	0.72	0.82	18.71

^a Effective tax rate is property taxes as percent of farmland value, computed by using only grain farms.

^b This percentage refers to a group of northern and central Illinois grain farms. Land rent is the landlord's crop-share rent and includes property taxes.

Table 2. *Illinois County Farm Property Tax Rates, 1962*

Rate range, percent	Number of counties
Less than 4.00	2
4.01 to 4.50	22
4.51 to 5.00	43
5.01 to 5.50	26
5.51 to 6.00	6
Greater than 6.00	3

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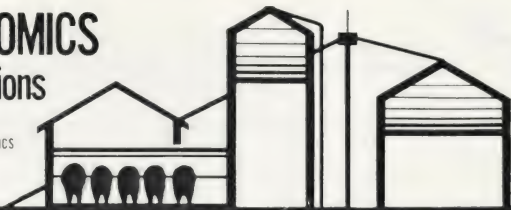
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August, 1985

85-11/1985 Farm Bill Update

Before Congress recessed for its traditional August break, progress had been made on new farm legislation. But many issues remain to be settled before a final bill emerges from Congress. The budget agreement by the Senate and the House will require special efforts by both committees to trim programs approved during the mark-up sessions.

The House Agriculture Committee seems closer to reporting out a bill than the Senate Committee. In a final session before adjournment, they postponed final action since they did not have a final budget figure. But they agreed to ready a bill to report out of committee by September 10, with all budget reconciliations included.

The Senate committee has had difficulty reaching agreement on how to handle target prices and other commodity program issues. The chairman and majority leader were concerned about costs, while other members wanted to ensure - to the greatest extent possible - continued government payments for hard-pressed farmers.

The provisions in the House and Senate bills summarized below are abbreviated and tentative, with changes possible before the final committee bills are sent to the floor.

The House Agriculture Committee Bill

Dairy and Livestock. Beginning October 1, price supports for manufacturing grade milk would be set under a formula which ties the support price to changes in production costs and annual commercial demand. If surpluses exceed 5 billion pounds of milk a year, the Secretary could carry out a producer-financed diversion program; if surpluses exceed 7 billion pounds, he would be required to carry out a diversion program. The federal marketing orders in certain areas would be adjusted to increase fluid milk prices. A National Dairy Research Endowment and Study Commission would be created to study nutritional benefits of dairy products and develop new products.

To head off problems for meat producers if a dairy diversion program increases the number of cows sent to slaughter, the bill directs the Department of Agriculture to increase, by 200 million pounds annually, its meat purchases for domestic donation programs whenever the diversion program is in effect. The bill also authorizes producer- and importer-financed programs to increase beef

promotion efforts, and a similar producer-backed program for pork promotion. An amendment requires that imported meats and livestock meet inspection and residue content standards which American products must meet.

An amendment requires dairy product importers to pay an assessment to the Department of Agriculture for dairy product promotion.

Wool. The current National Wool Act is extended for five years, with the present wool support formula continued through 1990.

Wheat and Feed grains. The Foley-Marlenee amendment provides for 1986-89 loan rates to be set annually by the Secretary, at 75 to 85 percent of the domestic market price averaged over three of the past five years, disregarding the high year and low year. But the basic loan rate could not be reduced by more than 5 percent in one year. Also, the proposal continues a feature of existing law--the Findley Amendment--giving the Secretary discretionary authority to reduce the loan rate up to 20 percent following years in which market prices have not risen above the loan by at least 5 percent. If both of these provisions were to be put into effect for the 1986 crop, the minimum loan level for wheat would be \$2.47 per bushel and for corn, \$1.91.

The 1986 and 1987 target prices for wheat and feed grains would be frozen at 1985 levels of \$4.38 for wheat and \$3.03 for corn. The 1988 and 1989 target prices for wheat and feed grains would be set annually by the Secretary of Agriculture at 110 to 125 percent of the domestic market price averaged over three of the past five years. The target price could not be reduced by more than 5 percent in any one year. Also, the Secretary must justify any reduction in 1988 or 1989 target prices on the basis of lower production costs. Deficiency payments would be calculated as in previous years.

The Secretary would also have the option of using a marketing loan to permit producers to pay off their price support loans at the average market price for the month in which they sell.

To be eligible for program benefits in 1986, wheat producers would be required to idle a minimum of 30 percent of their base acreage. Feed grain producers would idle a minimum of 20 percent. For commodities planted before the program announcement, there would be a 10 percent paid diversion program. This amendment would most likely apply to wheat and other grains planted in the fall of 1985, before the farm bill is completed.

Soybeans. Loan rates are to be set using the five previous years' average market prices, with the high year and low year excluded. The rate may be reduced by up to 10 percent if the market price does not exceed 105 percent of the loan rate. Loan rates would not fall below \$4.50 per bushel.

Conservation. This title of the bill has two parts:

- 1) For fragile land not cultivated since 1980, the bill provides a "sodbuster" program to discourage plowing. If a farmer violated program regulations by planting on fragile land, he would lose price supports and other farm benefits

for all crops. A companion "swampbuster" provision would deny farm benefits to producers who convert wetlands to crop use.

2) For fragile soils already in crops, the bill provides a long-term Conservation Reserve program. Farmers would contract to return up to 25 million acres to less intensive uses, such as grass or trees, for periods of not less than 10 years. An amendment was passed to prohibit harvesting, grazing or commercial use under a conservation reserve contract.

Credit. The bill authorizes, and in some cases revises, federal farm credit and rural development programs, and also includes discretionary authority for the Secretary to make advance payments on commodity loans to farmers beginning in 1986. (However, the cost of this provision may be prohibitive.) It also includes a provision designed to give farm product buyers "clear title" to their purchases while allowing lenders to protect their liens on farm products.

The bill sets new restrictions on how the Department of Agriculture handles farmland acquired in future foreclosures of Farmers Home Administration loans. The government could not sell such land if sales would depress local farmland values. Where such land is leased, it would be leased on a competitive bid basis, with priority given to former owners, family farmers and beginning farmers.

County farmer committees to oversee local Farmers Home Administration programs would consist of three members--two elected by farmers and one appointed by the Secretary of Agriculture.

Research. The research title of the bill includes a five-year extension of funding authority for agricultural research and extension programs, a number of new research priority guidelines and a proposal to spur development of export promotion centers.

Trade. The bill provides a payment-in-kind bonus export promotion program. Authority for an Export Credit Revolving Fund was extended, and revolving fund program was expanded. New minimums of grains, oilseeds and dairy products to be donated abroad are also established.

The Senate Bill

Dairy. On October 1, the support price would remain at \$11.60 per hundredweight. On January 1, 1987, if the Secretary estimates that surplus removals in the next 12 months will exceed 5 billion pounds or more, the support price will be reduced 50 cents per hundredweight, to \$11.10. If removals are estimated to be 10 billion pounds or more, the support price will be reduced \$1.00 per hundredweight. If removals are expected to be 2 billion pounds or less, the support price may be increased at least 50 cents. The Secretary will complete, within one year, a study of Class I differentials giving special attention to changes in costs of transportation.

Wheat and Feed Grains. Under the Zorinsky-Dole proposal, which was accepted as the mark-up vehicle, loan rates for 1986 would be \$3.00 for wheat and \$2.40 for corn. For 1987 and after, loan rates would be set annually by the Secretary at 75 to 85 percent of the average market price during three of the previous five years, excluding the high year and low year. But the basic loan rate could not be reduced by more than 5 percent in any one year as a result of the moving market average.

In addition, for 1986 and subsequent crop years, the Secretary would be authorized to further reduce loan rates not more than 20 percent, if market prices in the previous year are less than 110 percent of the loan rate. To the extent the Secretary uses this adjustment authority in following years, loan rates would snap back to levels determined by the annual adjustment formula.

Target prices for wheat, feed grains, cotton and rice. Setting these rates has been difficult. The first proposal called for holding 1986 target prices at the 1985 level. Later, a motion to freeze target prices at current levels for four years was approved 9-8. A later motion amended the freeze to two years, with a 5 percent reduction permitted in 1988 and 1989. It is expected that target prices in 1988 and 1989 will be close to 1986 and 1987 levels with a payment in kind to make up any decrease in cash deficiency payments resulting from a lower target price.

Acreage reduction. The Secretary would have discretionary authority for an acreage reduction program, with maximums of 20 percent for wheat, 15 percent for corn, 20 percent for cotton and 35 percent for rice. Discretionary authority for a paid diversion would be continued.

Acreage bases. The acreage base for wheat and feed grains would be the historic average for 1981-85, with a moving five-year average in succeeding years. For cotton and rice, the 1986 average would be based on the two most recent years. In each succeeding year, one additional year would be added until a 5-year base is established. In no case could the total base exceed total farm acreage.

Payment limit. The payment limit for direct payment would be \$50,000, as in the current law. Loan deficiency payments or inventory cost reduction payments for cotton and rice would not be counted as part of the payment limitation. However, Senator Dole, speaking on the Senate floor Thursday, August 1, stated that he may propose a further limitation to cut costs and direct payments to family farmers. The Helms bill proposed a payment limitation of around \$24,000--the national and median family income.

Use of set-aside acres. If the wheat program is not announced by July 21, grazing and haying will be allowed in 1986. In succeeding years, state committees can decide when grazing will be permitted, but a 5 month period of non-grazing would be required.

Conservation. Sodbuster and swampbuster features have been tentatively approved. Persons who do not comply with these rules could lose all federal program benefits.

What next? Much work remains before a new farm bill can be passed and signed by the President. The House and Senate are concerned about costs of the bill being developed. During the August recess, costs of the various programs will be assessed. Many figures about projected costs have been discussed. Currently, the House bill is reported to be about \$10 billion over budget, and the Senate provisions being considered are about \$6 billion over the next three years. Some estimates are higher, however.

Congress returns September 4. Some final clean-up will be completed in each body before a bill is ready to report out. It appears that most of September will be allotted to finalizing bills written in committee, and debate and actions on the House and Senate floors. A conference committee (to resolve the differences) isn't likely to be formed before October. The earliest that a bill could reach the House and Senate for final approval would be November. It could be December.

Since the dairy program expires September 30, and a reversion to basic legislation would boost support prices to \$16.22, the permanent law specifies 75 to 90 percent of parity, Congress could be faced with a choice of moving new legislation through quickly, letting support prices go up or extending current legislation on a temporary basis.

Secretary of Agriculture Block Press Conference

Secretary Block held a press conference Friday, August 2. A summary of his comments follow.

Block is disappointed that more work has not been done on a farm bill. He said some progress has been made, but that in the last two weeks some committee members "have drifted off into fantasy land". Some provisions are too costly.

There are no clear signals to farmers who want to plan fall crops.

The one positive note is that Congress passed a binding budget resolution, and it will provide fiscal restraint. The resolution provides \$34-35 billion over three years. Both the Senate and House bills are above this.

The following provisions are unacceptable: mandatory supply controls, marketing loans, a dairy diversion program, extension of current law, and price or income supports based on the cost of production.

He recommended these revisions to committee bills: reductions in income supports each year, delete authority for marketing loans, target program benefits to family farmers, delete the dairy diversion program, and reduce the dairy support price in fiscal year 1986.

He would like to see benefits targeted to family farms. About 98 percent of farmers would be unaffected by a \$25,000 limit on direct payments.

The first Administration objective is a sound farm policy. The second is to meet budget targets.

Target prices should be lowered gradually, he emphasized. With lower loan rates, they are very costly, then encourage more production, and with budgetary exposure, they become a backdoor mandatory production control.

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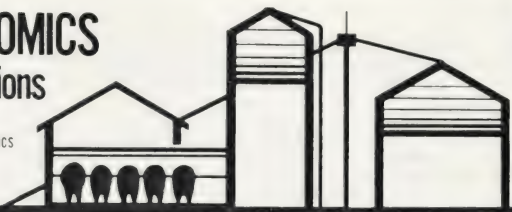
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FARM ECONOMICS

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DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August 1986

85-12/Illinois Farm Property Tax Assessments for 1986

Farm assessments recently certified by the Illinois Department of Revenue (DOR) show 1986 use-value assessments (the basis for 1987 farm property taxes) continuing the slight recovery that began in 1985. However, poor economic performance in the farm sector in 1985 will likely make this recovery short-lived. The weak agricultural economy is holding down taxable values on Illinois farmland under the use-value assessment law. Economic forces are driving down farmland prices in all midwestern states, including an estimated 27 percent fall in Illinois land values between April, 1984 and April, 1985.

Because of averaging procedures used to calculate use-value assessments, 1985 agricultural economic conditions will be reflected in 1987 assessments.

Comparing tax levels among midwestern states shows the general effects of use-value assessment programs. Table 1 presents per acre taxes levied on farm real estate for 1981, the most recent year U.S.D.A. has reported. Illinois' \$14.08 reported per acre average is exceeded only by the average levies in Michigan and Wisconsin (\$20.54 and \$14.43, respectively). This relationship also holds when taxes are reported per \$100 of market value. In 1981, the \$14.08 reported in Illinois represented \$.66 of every \$100 of market value. With recent dramatic declines in market prices on farmland and generally higher property taxes, Illinois farm property taxes now probably average \$.90 or more for every \$100 of market value.

Missouri reports the lowest 1981 farm property taxes in the midwest, with taxes averaging \$2.95 per acre. Of the states listed in Table 1, only Michigan and Wisconsin do not have use-value assessment programs. Property taxes are based on the market value of farmland, which probably accounts, in part, for the relatively higher per acre farm property taxes in Wisconsin and Michigan.

1986 USE-VALUE ASSESSMENTS

The recently certified assessed values reflect economic conditions in farming averaged from 1980 through 1984. For the second year, Illinois farm assessments increased slightly (1985 assessments were somewhat higher than 1984 assessments for most Illinois soils). This reflects the impact of PIK and the 1983 drought, which strengthened prices, and generally stronger prices in much of 1984. These higher average prices were used in the assessment calculations reported in Table 2. For example, the five-year average corn price increased from \$2.75 per bushel in 1985 assessments to \$2.87 in 1986 assessments. Five-year average soybean prices were essentially constant for these two assessment years, still below the highest five-year average which occurred in 1983. The index of farm assessments in Table 2 depicts the somewhat higher

assessments for both better and poorer quality soils for 1986. However, better soils are assessed at 78 percent of their 1981 level. On poorer soils, the impact of the weak economy has been more severe, and 1986 assessments average 44 percent of the 1981 level.

Nonland production costs used to calculate assessments were relatively stable between 1985 and 1986. The five-year average effective Federal Land Bank (FLB) mortgage interest rate on new farmland loans, used as a capitalization factor, increased from 11.93 percent for the 1985 values to 12.44 percent for the 1986 assessment.

In general, higher prices, relatively constant nonland production costs and higher FLB interest rates combined to edge assessments higher in 1986, compared to 1985 assessments. Incorporating 1985 data from the agricultural economy into the 1987 use-value assessment calculations is likely to push assessments down again. These conditions underlie the recent decline in market prices of Illinois farmland.

ASSESSMENT TRENDS AMONG ILLINOIS COUNTIES

Fiscal pressure of lower taxable Illinois farmland values forced the enactment of special legislation in 1984. The law placed a ceiling and a floor on the annual rate of change in county farmland property tax bases. Since 1985, the assessed valuation on farmland cannot change by more than 10 percent annually. Legislators passed this "limit law" to aid rural school districts that depend heavily on farm property tax revenues to pay teachers, maintain school buildings, transport students, and so forth. The law allows more tax revenues to be collected in 1985, 1986 and 1987 than would have been possible without significantly higher tax rates.

Unfortunately, short-range remedies such as the limit law do not address the fundamental policy issue of what is the most appropriate and equitable way to finance Illinois schools. In many areas, the limit law only delays the pending fiscal collapse of rural school districts. The current school finance issue in Illinois extends beyond the level of school property taxes paid by farmland owners to include restructuring the economy. The slow economic recovery of trade goods sectors such as agriculture and heavy equipment manufacturing will fiscally stress schools in some regions, while schools in communities recovering because of a growing high-tech or service sector will benefit from an expanding local property tax base. State policymakers and school officials face these issues in the months ahead.

The impact of the limit law and the slight upward movement in 1986 assessments will vary from county to county. This variation is reflected in the level and changes in per acre average farmland assessments provided in Table 3. Averages for 1982 through 1984 are actual abstracted values taken from county reports provided by DOR. Averages for 1985 and 1986 are estimates.

The impact of the limit law is most evident when 1983 averages are contrasted with 1984 assessments. Most counties reported 1984 average assessments at 90 percent of 1983 assessments. In 1985, many counties limited farm assessment changes to 10 percent. With the slight recovery in use-values for 1986, assessment reductions were limited to 10 percent in an estimated 27 counties. This compares to 52 counties with higher farm assessments in 1985 because of the limit law.

County soil quality was related to whether or not the limit law affected 1986 assessments. Since assessed values on poorer soils dropped lower and are recovering more

slowly than values on the better soils, counties with poor soils tend to have higher relative assessments in 1986 than counties with better soils. These relative movements in assessed values across land of varying quality, affected by the limit law, have a rather perverse outcome. Poorer quality farmlands are burdened with relatively higher property taxes compared to taxes on better quality lands. The majority (75 percent) of this tax burden finances local school spending.

SUMMARY

The economic conditions in farming in 1984 combined with data from 1980 through 1983 to raise 1986 use-value assessments over 1985 levels. With the continued poor performance of the farm economy in 1985, expectations are for little or no increase in farm assessments in 1987, and a strong possibility of lower use-value assessments in 1987 and beyond. Since the decline in the tax base of rural governments, especially school districts, was politically unacceptable, the limit law was enacted in 1984 to protect the financial capacity of jurisdictions. The limit law and the slight increase in 1986 farm assessments combined to produce variations in Illinois county farm tax base changes. In 1986, farmland assessments will be higher in 27 counties because of the limit law. Continued declines in farm assessments and the slow economic recovery in regions that depend on heavy manufacturing and export sales will erode the fiscal base of many Illinois school districts and limit their spending without more state aid. Farm assessments, economic growth and restructuring, school finance and reorganization will be major concerns of Illinois agriculture and state policymakers in 1986.

• *David L. Chicoine*

David L. Chicoine
Extension Economist

Table 1. Per Acre Taxes Levied on Farm Real Estate
Illinois vs Other Selected States, 1981

State	\$ per acre	\$ per \$100 mkt value
Illinois	\$14.08	\$0.66
Indiana	7.80	0.40
Iowa	10.32	0.53
Michigan	20.54	1.67
Missouri	2.95	0.31
Minnesota	5.25	0.43
Ohio	8.33	0.48
Wisconsin	14.43	1.31

Source: U.S.D.A. Farm Real Estate Taxes, 1981, No. 701, November 1983.

Table 2. Illinois Farmland Assessment Trends
1981-1986 Assessment Years

	Commodity Prices		Index of Nonland Production Costs		5-year Average FLB Interest Rate	Index of Per Acre Assessments	
	Corn \$/bu.	Soybeans \$/bu.	Better Soils	Poorer Soils		Better Soils	Poorer Soils
1981	\$2.32	\$6.27	100	100	9.20%	100	100
1982	2.39	6.53	105	105	9.77	98	98
1983	2.48	6.81	113	113	10.37	91	87
1984	2.55	6.62	122	125	11.71	69	42
1985	2.73	6.73	125	132	11.93	75	41
1986	2.87	6.76	125	134	12.44	78	44

Table 3. County Average Farmland Assessments, 1982-1986.
(\$ per acre)

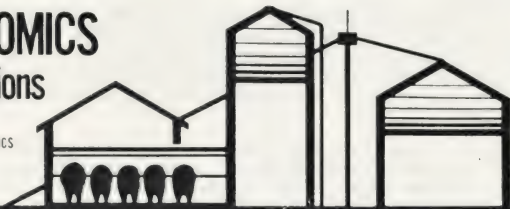
County	1982-1986					County	1982-1986				
	1982	1983	1984	1985	1986		1982	1983	1984	1985	1986
Adams	162	162	146	142	145	Lawrence	170	116	106	111	111
Alexander	102	50	55	60	66	Lee	293	291	262	254	261
Bond	122	101	91	82	75	Livingston	288	275	246	239	240
Boone	275	261	235	212	191	Logan	356	331	298	296	307
Brown	106	95	105	115	120	Madison	377	257	238	221	228
Bureau	267	238	231	250	259	Maize	268	244	220	198	181
Calhoun	94	94	85	76	76	McLean	380	357	321	317	327
Carroll	238	238	213	201	207	Macon	419	399	386	347	345
Cass	179	171	154	153	158	Macoupin	178	173	168	182	186
Champaign	401	378	340	306	314	Madison	227	227	205	185	166
Christian	331	306	275	248	252	Marion	130	96	86	77	69
Clark	125	111	100	95	94	Marshall	297	279	251	237	245
Clay	113	99	89	80	72	Mason	160	163	158	142	128
Clinton	119	104	94	85	77	Massac	115	114	104	94	85
Colles	308	314	282	254	260	Menard	303	301	270	242	249
Cook	492	399	-	-	-	Mercer	195	181	200	220	229
Crawford	122	122	109	98	90	Monroe	152	132	121	109	98
Cumberland	142	132	119	123	123	Montgomery	196	180	162	147	149
DeKalb	375	350	315	300	311	Morgan	269	259	233	230	237
DeWitt	408	407	366	329	325	Moultrie	415	398	358	328	339
Douglas	407	392	352	317	326	Ogle	272	256	230	207	201
DuPage	303	274	236	212	193	Peoria	220	220	196	176	171
Edgar	322	305	275	252	260	Perry	107	95	85	77	69
Edwards	147	147	132	119	107	Piatt	407	386	347	323	334
Effingham	137	122	110	99	89	Pike	178	179	163	154	157
Fayette	132	90	92	95	95	Pope	66	58	53	48	43
Ford	292	266	239	216	221	Pulaski	128	96	86	77	69
Franklin	96	94	85*	77	69	Putnam	246	230	205	210	217
Fulton	160	150	136	146	136	Randolph	148	131	118	106	95
Gallatin	147	138	139	148	151	Richland	150	98	88	79	71
Green	196	190	175	189	195	Rock Island	218	218	196	176	179
Grundy	291	267	240	242	249	St. Clair	150	137	124	116	117
Hamilton	114	86	80	72	65	Saline	112	107	97	87	78
Hancock	218	204	183	184	189	Sangamon	369	350	313	292	302
Hardin	60	53	48*	43	39	Schuyler	136	121	109	108	109
Henderson	221	209	188	194	200	Scott	169	160	159	171	175
Henry	232	209	207	224	230	Shelby	195	179	161	150	152
Iroquois	289	266	239	215	202	Stark	290	257	247	268	277
Jackson	73	76	68	61	55	Stephenson	168	147	162	178	196
Jasper	158	142	127	114	103	Tazewell	315	295	265	246	254
Jefferson	123	122	107	96	86	Union	106	105	94	85	77
Jersey	160	154	139	138	141	Vermillion	289	264	238	242	249
JoDaviess	125	91	91	95	95	Wabash	149	123	135	149	156
Johnson	66	66	59	53	48	Warren	355	360	321	300	310
Kane	295	270	242	218	221	Washington	109	95	85	77	69
Kankakee	246	222	199	179	170	Wayne	131	122	110	99	89
Kendall	330	306	280	252	252	White	148	147	133	120	108
Knox	286	278	251	226	223	Whiteside	252	251	226	203	194
Lake	168	143	143	150	152	Will	262	211	196	176	171
LaSalle	325	297	267	267	275	Williamson	94	95	83	75	67
						Winnebago	213	192	173	156	149
						Woodford	345	345	311	280	262

* estimated

FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



August, 1985

85-13/ILLINOIS TEST-DEMONSTRATION FARM PROGRAM IN EDWARDS, JACKSON AND WHITE COUNTIES 1984

Since 1983, Edwards and Jackson Counties have participated in Test Demonstration Farm Program Activities. White County began in 1978. The Test-Demonstration activities are coordinated by the Cooperative Extension Service, College of Agriculture, University of Illinois at Urbana-Champaign and the Tennessee Valley Authority (TVA). The state project supervisor is Dr. Duane E. Erickson, Department of Agricultural Economics, University of Illinois. Programs on balanced fertilization, crop selection, livestock management, facility buildings maintenance, drainage, machinery use, equipment and labor, and family living are included.

Five major objectives of the Test-Demonstration Farm Program are to:

1. Introduce and demonstrate TVA experimental fertilizers in educational programs that promote more efficient fertilizer use.
2. Develop an integrated business organization on each farm.
3. Encourage participants to demonstrate the advantages of improved farming practices to other area farmers.
4. Use whole-farm demonstrations to help stimulate agricultural development.
5. Use research findings from the University of Illinois College of Agriculture in a complete farm program demonstration.

Following are the 1984 highlights for Edwards, Jackson and White Counties. Edwards County corn, soybean and wheat yields were 100, 31 and 28 bushels per acre respectively. Income before depreciation was \$13,125 per farm while the operator's net farm income was -\$9,298.

Jackson County corn, soybean and wheat yields averaged 64, 19 and 33 bushels per acre. The operator's share of income before depreciation was -\$730 per farm. This income reflects two dry and difficult seasons in Jackson County. Four of the five farmer cooperators have income from non-farm jobs. The overall forage production of these five farms in the Kinkaid Watershed has been excellent.

The five White County farms averaged 116 bushels of corn, 31 bushels of soybeans and 30 bushels of wheat per acre. One of the White County farms includes some irrigated crops. The operator's share of income before depreciation was \$24,982 per farm. The operator's labor and management returns averaged -\$2,276.

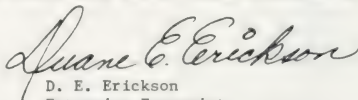
SUMMARY FOR 1984

Test-Demonstration Farm Program participants were challenged in 1984. A wet spring delayed planting, followed by a hot dry summer. When the rains finally came, they did not stop. Harvest was extremely late and long for many cooperators. The low yields in Jackson County reflect corn harvesting into January of 1985. The 1985 crop reflects better crop and weather conditions.

Group activities included summer educational tours in Edwards, Jackson and White Counties. Fifty farm visits were made to encourage crop, financial and livestock planning.

Crop and fertility programs are being improved on all of the farms participating in this project. Also, work on evaluating endophyte fungus in fescue was started in Jackson County in 1984. Samples showed fairly heavy infestations of the fungus in many fescue fields. A follow-up survey of surrounding counties in Southern Illinois was conducted in 1985. A total of 125 samples collected in 44 counties showed a 10 to 100 percent range of infection. The average was 78.5 percent infestation of endophyte fungus. Similar high levels of endophyte fungus free is being considered to alleviate this problem. Endophyte fungus affects the nutritional value of fescue in cattle rations.

Following are tables that illustrate the cooperating farms' income performance in 1984.



D. E. Erickson
Extension Economist
Farm Management

Table 1. Summary of Farm Business Records, Edwards County Test-Demonstration Farm Averages, 1984

	Operator's Share	Whole-Farm Share
Number of farms	5	5
Total tillable acres	812.8	812.8
Soil productivity rating	68	68
Cash operating income	\$151,590	\$ 208,708
Gross farm returns	133,485	188,643
Cash operating expenses	117,249	125,237
Farm produced inputs used	0	0
Accounts payable	3111	4,421
Income before depreciation	13,125	58,985
Depreciation	22,321	23,579
Farm operating income	-9,196	35,406
Gain or loss	-102	-102
Net farm income	-9,298	35,304
Interest on equity capital	6,389	37,481
Unpaid family labor	2,640	2,640
Operator's labor and management income	-18,327	-4,817
Unpaid operator's labor	14,080	14,080
Management returns	-32,407	-18,897
Crop returns		169,984
Livestock returns above feed costs		752
Custom work		2,012
Other cash income		4,031
Gross value of farm production		176,779
Total crop costs		43,489
Total building costs		8,453
Total machinery costs		43,709
Total labor costs		25,709
Total other costs		74,214
Total nonfeed costs		195,574
Value of feed fed		29,380
Total capital investment (end of year)	\$485,325	\$1,298,265

Table 2: Summary of Farm Business Records, Jackson County Test-Demonstration Farm Averages, 1984

	Operator's Share	Whole-Farm Share
Number of farms	5	5
Total tillable acres	199.2	199.2
Soil productivity rating	56.8	56.8
Cash operating income	\$ 24,485	\$ 32,728
Gross farm returns	25,738	33,455
Cash operating expenses	26,468	30,316
Farm produced inputs used	0	0
Income before depreciation	-730	3,139
Depreciation	5,984	6,425
Farm operating income	-6,713	-3,286
Gain or loss	-325	-325
Net farm income	-7,038	-3,611
Interest on equity capital	5,699	13,224
Unpaid family labor	2,640	2,640
Operator's labor and management income	-15,377	-19,475
Unpaid operator's labor	9,240	9,240
Management returns	-24,617	-28,715
Crop returns		32,456
Livestock returns above feed costs		-3,486
Custom work		413
Other cash income		1,053
Gross value of farm production		30,436
Total crop costs		9,868
Total building costs		2,207
Total machinery costs		11,694
Total labor costs		12,107
Total other costs		22,950
Total nonfeed costs		58,826
Value of feed fed		15,268
Total capital investment (end of year)	\$151,881	\$337,050

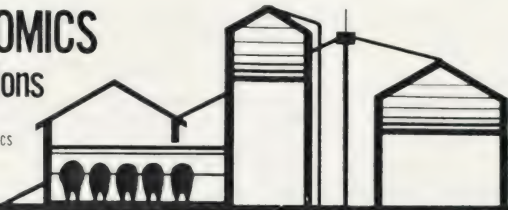
Table 3: Summary of Farm Business Records, White County Test-Demonstration Farm Averages, 1984

	Operator's Share	Whole-Farm Share
Number of farms	5	5
Total tillable acres	795.2	795.2
Soil productivity rating	51.8	51.8
Cash operating income	\$104,863	\$160,945
Gross farm returns	120,472	176,553
Cash operating expenses	95,817	109,236
Farm produced inputs used	1,074	1,074
Prepaid expense	1,401	1,401
Income before depreciation	24,982	67,644
Depreciation	26,309	26,320
Farm operating income	-1,327	41,324
Gain or loss	-949	-949
Net farm income	-2,276	40,375
Interest on equity capital	14,124	37,134
Unpaid family labor	2,200	2,200
Operator's labor & management income	-18,600	1,041
Unpaid operator's labor	12,760	12,760
Management returns	-31,360	-11,719
Crop returns		173,486
Livestock returns above feed costs		-1,239
Custom work		1,573
Other cash income		1,796
Gross value of farm production		175,616
Total crop costs		52,962
Total building costs		7,429
Total machinery costs		47,840
Total labor costs		18,922
Total other costs		59,233
Total nonfeed costs		186,386
Value of feed fed		10,596
Total capital investment (end of year)	\$336,902	\$936,827

FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



November 1985

85-14/Land Rent

Worried about the decline in net farm income, farm operators are more concerned this year than in the past several years about the arrangements made in renting land. Many landowners are also uneasy about the level of rent, the financial viability of their tenants, the value of land, and the care taken with their land. Most of the landowners we confer with and receive letters from are aware that farm incomes are lower and are trying to be reasonable about rent. They recognize that rents must be reduced so that good farmers can remain on their farms and so that tenants can earn a living for their families and support community services.

CROP-SHARE RENT

The crop-share lease is still the most prevalent method of renting in Illinois. Our data show that about 75 percent of the rented land is rented on a crop-share basis. One reason that the crop-share lease has been so popular over a long period of time is that with this method, rent is self-adjusting. The landowner and the tenant share the risk of price and yield. During periods of high yields or high prices, the tenant automatically pays a higher rent, and vice versa. There is substantial pressure by farmers and bankers for a return from cash-type leases to the share-rent system so that farming risks can be shared by the farmer and the landowner. We also see some pressure on landowners to share more of the inputs, like half the combining and hauling costs in addition to half the costs of the big three—seed, fertilizer, and herbicide. We believe that this is justified, particularly on farms with a history of lower yields. The best farms are still going to command the higher rent.

CASH RENT

There are advantages and disadvantages to cash rent for both the landowner and the farmer. Many landowners like cash rent because they do not have to think about the extra accounting involved with input bills and they do not have to watch the commodity markets to decide when to sell their half of the crop. Farmers like cash rent because they can manage the farm themselves and not consult much with the landowner. Bid up too high, however, cash rents are now declining. In 1982 a top quality 340-acre farm in central Illinois rented at auction for \$209 per acre. But each year since 1982, it has come down: \$170 in 1983, \$158 in 1984, \$145 in 1985, and \$126 in 1986. This is a 40 percent decline from the peak.

We recommend that more people who now have a fixed cash rent consider a variable cash rent. Variable cash rent retains the management and accounting advantages of the cash-rent system but also provides the option of sharing risks as in the share-rent system. A variable cash rent, like the crop-share lease, is also more likely to result in longer tenure.

There are several formulas for adjusting cash rent from year to year. It can be adjusted up and down with both yields and prices. Suppose, for example, that a cash rent of \$100 per acre is agreed upon when the average price of corn is \$2.50 per bushel and the five-year average county corn yield is 110 bushels per acre. Suppose also that a year later the

average price of corn goes to \$3.00 per bushel and the average corn yield for the county goes to 120 bushels per acre. The rent would be adjusted as follows:

$$\$100 \times 3/2.5 \times 120/110 = \text{New Rent} = \$130.90$$

The original yield and price are always placed in the denominator, and the new yield and price in the numerator of the ratios for the adjustment. Another formula for adjusting the rent is to agree on a number of bushels to be paid as rent and adjust the rent for variations in the yield as in the example above. Then multiply the adjusted bushels times the average price for the year to get the cash rent. A rule of thumb for cash rent is one-third the average yield times the price. This rule will hold fairly well for the better farms but clearly needs to be modified for farms with soil of lower quality. Tenants with lower yields must have a larger share to pay the operating expenses of the farm, which do not decline as much as yields when the soil is of lower quality. The fair economic share of the landowner could be as low as 20 percent on farms yielding under 100 bushels of corn per acre.

LENGTH OF TENURE

We find that many farms have fairly long tenure and that tenure is generally longer on farms with crop-share leases than with cash leases because rent is automatically adjusted with a crop-share lease. This flexibility is one reason that we recommend the variable cash lease. It should result in longer tenure than the fixed cash rent. Longer tenure is good for tenants because they can plan over a longer period of time and can purchase additional or replacement machinery with less risk of loss. Longer tenure therefore improves long-term efficiency. Landowners who give three- or five-year leases find that they get better tenants--tenants who profitably practice soil conservation, build up the fertility of the soil, and enter into other longer-term improvement programs because they know they will be on the farm for several years to enjoy the benefits of these longer-term programs.

Regardless of the type of lease, however, it is important to have the lease in writing to keep a record of what was agreed upon. When we rely on memory alone there can be honest disagreement about the terms of a lease, which could easily be cleared up by a written document. Remember that clear communication between landowner and tenant is the best assurance of a good relationship between them.

Prepared by *John T. Scott, Jr.*, Professor, Land Economics and Farm Management.

Issued by,

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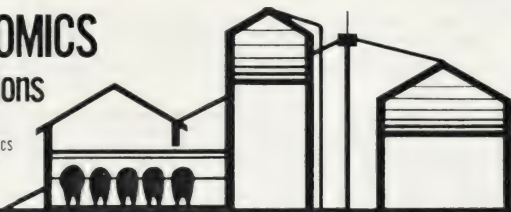
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



November 1985

85-15 / Farm Credit Conditions in Illinois

We expect some improvement in credit conditions for many farmers this year. Most farmers have been holding down both their farm and household expenses, but many find it very difficult to pare their cash expenditures much lower because of several years with low incomes and restricted expenditure. The main reason for some potential improvement this year is the bumper crops of corn and soybeans. For those in the government program, the gross return per acre on corn will be higher than any time in recent years, and nearly the same per acre gross on soybeans as a year ago despite the two-dollar drop in price.

Despite the high yields this fall, however, a significant number of farmers will experience financial failure and leave agriculture in the near term: eight to ten percent according to our figures based on debt-asset relationships. (By financial failure, we mean that liabilities exceed assets or that cash flows are insufficient to meet farm and household needs over time.)

The attached table shows some of these relationships. About 32 percent of the farms are above a debt-asset ratio of 50 percent, and 15 percent above a debt-asset ratio of 80 percent. Many above 80 percent are in serious trouble, particularly if they own very much land. Tenants can carry a higher debt-asset ratio and continue in business because the rate of return on machinery is usually higher than on land. Also, a larger proportion of their debt is operating debt, which is normally funded for the short run. Certainly everyone above a debt-asset ratio of 80 percent will not go out of business, but depending on how the debt is structured and other sources of income, some with lower debt-asset ratios will.

Decline in farm numbers over the last 25 years in Illinois (154,644 farms in 1959, compared with 98,483 farms in 1982) has been caused mainly by physical and technological changes in machinery and crop production with substitution of capital for labor. This decline in farm numbers on the average from 1959 to 1982 was about 2 percent per year. Most of those leaving were bid out of business by more competitive farmers.

Now farm operators leave farming primarily because of their financial decline and failure or because of better alternatives, not because of the bidding away of their assets by other farmers. The rate of decline in the near term will be at least double or triple the annual rate of the previous twenty-five years.

Modern farming with high technology and intensive capital inputs has greatly increased cash costs over the last twenty years in relation to the value of output. This increase has reduced profit margins, creating greater risk and vulnerability to variations in output prices. The same fluctuation in commodity prices now produces wider fluctuation in profit and underlying capital values.

For those farmers who own a part or all of their land, the decline in land price of about 50 percent since 1981 has seriously affected their ability to borrow money. Those who borrowed even apparently conservative amounts on this collateral, now find much of their equity eroded away.

Lenders are finding that mortgage balances frequently are above current land values. The impact on lenders of potential farm failures is significant. The attached table shows that 15 percent of the farms with debt-asset ratios of over 80 percent have 27 percent of the outstanding debt, and the average debt-asset ratio for the group is 112 percent, indicating that some in the group are already insolvent.

Lender recovery on bad loans is almost always below the loan value. Recovery on operating and machinery loans is usually poor. Land mortgages have a better record, depending a lot on the staying power of the lender and the length of time before the next cyclical upturn in value. Insurance companies taking over land in the 1930s had to carry it ten to fifteen years before they came out whole. With economic variables more volatile and government policies around the world more changeable now, it is likely that this cycle in land values will be shorter than the last.

The Farm Credit System has asked for an infusion of government capital and will probably receive it in one way or another; so it is unlikely that credit will dry up for credit-worthy farmers and agricultural businesses. Infusion of capital from the government would set no precedent because the government was the major capital holder in the system once before and has bailed out airplane makers, car makers, and commercial banks.

Economic cycles have always taken their toll. This one will be no exception. The tragedy is in the human trauma and personal losses of savings and livelihood. Agricultural economists, other social scientists, and government representatives are struggling to develop policies that will reduce the sting of economic forces in the marketplace. In the meantime, we urge individuals experiencing financial difficulties to use available state and federal programs, including Rural Route, a counseling program at the University of Illinois (1-800-847-6883).

*Table of Debt-Asset Ratios and Related Statistics
from The Farm Business Farm Management Records as of Dec. 31, 1984.^a*

Debt-asset ratio	Farms	Average debt-asset ratio	Ratio of debts to total debt	Ratio of assets to total assets
<i>percent</i>				
0	8.6	0	0	6.0
1-20	28.6	8.9	8.4	33.2
20-50	39.9	34.7	36.1	36.4
50-80	16.8	62.1	28.5	16.0
80	15.1	112.9	27.0	8.4

^aThese figures are derived by capitalizing interest payments to estimate the amount of debt and do not include off-farm assets owned by farmers. Also sale of inventory to pay debt before the end of the year would reduce asset values, whereas the interest paid would still be picked up as representing the full debt. So the foregoing figures must be used with substantial caution.

Prepared by John T. Scott, Jr., Professor, Land Economics and Farm Management.

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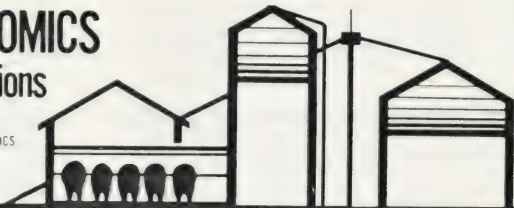
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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
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85-16/What Will It Take To Survive In Illinois Agriculture?

■ A combination of high interest rates, weak commodity prices, and falling land values have shaken the confidence of many farm operators in their ability to survive and prosper in farming. The future survival and prosperity of Illinois and other farm operators is closely tied to a number of important factors:

- commodity prices,
- the current financial position of the farms,
- the proportion of owned versus rented land,
- the management skills of the operators,
- interest rates,
- costs of production,
- public policies and programs, and
- land values.

This article projects the future financial situation of several farm firms under different economic conditions.

The Projected Economic Situation Of Grain Farms

To examine the importance of these factors more carefully, we have projected the financial situation of an Illinois cash-grain farm under three different tenure patterns (full owner, part owner, and full tenant) with three different initial debt-to-asset ratios (20, 50, and 70 percent) and three different sets of commodity prices. Table 1 shows the commodity prices used for these three economic scenarios.

The base farm used in the simulation consisted of 602 acres. The full owner was assumed to own all of the land and rented no other land; the part owner was assumed to own 112 acres and to share-rent the remaining 490 acres on a 50-50 basis; the full tenant rented the entire 602 acres in a 50-50 share-rental arrangement.

For the scenarios with weak and moderate prices, it was assumed that the costs of production and the value of land remained

Table 1. Commodity Prices Used to Project the Financial Condition of Illinois Cash-Grain Farms

Commodity	Levels of commodity prices	Year			
		1986	1987	1988	1989
Base Case					
Corn	Weak	2.15	2.15	2.20	2.25
	Moderate	2.60	2.65	2.70	2.75
	High	3.03	3.21	3.40	3.61
Beans	Weak	5.30	5.10	5.10	5.25
	Moderate	5.75	5.75	5.90	6.00
	High	7.00	7.42	7.86	8.34

at their 1985 level. Interest rates were assumed to be at 12.5 percent for both operating and capital loans throughout the next four years. Corn yields were assumed to average 130 bushels per acre, and soybeans 45 bushels per acre.

For the scenario with high commodity prices all previous assumptions were used except that land values were assumed to grow 6 percent annually due to much higher commodity prices. Costs of production were assumed to increase 3 percent annually.

Initial Debt-to-Asset Ratio of 20 Percent. Simulated results for a farm operator with an initial debt-to-asset ratio of 20 percent are shown in Table 2. Net farm income is positive. For the scenario with weak commodity prices, it is relatively low although it is generally higher for the full tenant than for the part or full owner. Under scenarios with moderate or higher prices, however, the full owner achieves more income and a larger growth in net worth than either the part owner or full tenant. The results clearly suggest that grain farm operators with an initial debt-to-asset ratio of 20 percent can survive low commodity prices for quite an extended period of time and can prosper under moderate or high commodity prices.

Initial Debt-to-Asset Ratio of 50 Percent. Simulated results for a farm operator with an initial debt-to-asset ratio of 50 percent are listed in Table 3. According to the scenario with weak prices both the full and part owner suffer negative net farm incomes in each of the next four years. In contrast, the net farm income of the full tenant is positive in three of the four years. But, in all three tenure situations, net income is not high enough to cover the living expenses of the family, so there is a decline in net worth. The greatest drop in dollars occurs for the full owner. But the debt-to-asset ratio increases the fastest on farms with full tenant operators, who lose over 50 percent of their initial net worth.

At moderate prices, full owners with an initial debt-to-asset ratio of 50 percent, still generate negative net farm incomes, and their debt-to-asset ratios continue to rise. Part owners achieve small positive net farm incomes that are not sufficient to cover the living expenses of the family.

Hence the debt-to-asset ratios of their farms also continue to rise. For the full tenant, moderate prices generate positive net farm incomes, a slight growth in net worth, and some reduction in the debt-to-asset ratio.

Clearly tenant operators with high debt-to-asset ratios can survive moderate prices better than full or part owners with comparable debt-to-asset ratios.

Under the scenario with high prices farms with all three tenure situations prosper and survive. Net farm income and the percentage growth in net worth are still highest for the full tenant operator, but the greatest dollar amount of growth in equity will occur on farms with full owners because of the inflating value of land.

Initial Debt-to-Asset Ratio of 70 Percent. The financial situations of farm operators with an initial debt-to-asset ratio of 70 percent are reported in Table 4. Results suggest that under weak commodity prices, all three tenure types will be technically insolvent in four years. Full owners lose large amounts of equity because of huge annual negative net farm incomes. In contrast, full tenants have relatively low negative net farm incomes but are unable to generate sufficient cash to meet the living needs of their families.

Under the scenario with moderate prices only the full tenant operator will generate a positive net farm income. Full owners with an initial debt-to-asset ratio of 70 percent will still experience large losses, and their ending debt-to-asset ratio will have climbed to 92 percent. In contrast, the debt-to-asset ratio of the full tenant will be increased from 70 to 75 percent over the four-year period.

According to the scenario with high prices the debt-to-asset ratios of all three tenure types decline over time, but the full owner will have a negative net farm income in three of the four years and show only a modest reduction in the debt-to-asset ratio. The reduction comes despite large increases in operating debt because of the increasing value of land. For the full tenant, net farm income will be strong, and net worth will grow by over 40 percent in four years. Notice that net farm income is highest for the full tenant

Table 2. Projected Financial Situations of Illinois Cash-Grain Farms With An Initial Debt-to-Asset Ratio of Twenty Percent

Scenario	Tenure pattern		
	Full owner	Part owner	Full tenant
WEAK PRICES			
Net farm income			
1986.....	5,379	6,695	10,203
1987.....	6,096	6,661	10,457
1988.....	6,929	3,502	7,062
1989.....	15,058	10,787	3,975
Net worth			
1986.....	1,135,119	333,551	131,899
1987.....	1,124,422	323,040	124,107
1988.....	1,115,324	310,432	114,496
1989.....	1,114,231	305,575	112,301
Ending debt-to-asset ratio	21 percent	23 percent	26 percent
MODERATE PRICES			
Net farm income			
1986.....	30,268	21,460	22,647
1987.....	38,685	25,616	26,376
1988.....	43,971	24,590	24,395
1989.....	54,026	32,094	30,885
Net worth			
1986.....	1,160,008	345,316	141,343
1987.....	1,172,792	348,701	145,016
1988.....	1,189,838	353,884	149,678
1989.....	1,211,792	362,502	157,164
Ending debt-to-asset ratio	15 percent	15 percent	17 percent
HIGH PRICES			
Net farm income			
1986.....	47,464	41,472	39,520
1987.....	59,772	51,682	48,182
1988.....	63,456	52,976	48,301
1989.....	85,791	65,403	58,924
Net worth			
1986.....	1,252,092	370,768	150,216
1987.....	1,365,116	404,916	167,354
1988.....	1,490,066	441,306	185,153
1989.....	1,630,290	485,788	209,685
Ending debt-to-asset ratio	12 percent	12 percent	13 percent

Table 3. Projected Financial Situations of Illinois Cash-Grain Farms With an Initial Debt-to-Asset Ratio of Fifty Percent.

Scenario	Tenure pattern		
	Full owner	Part owner	Full tenant
WEAK PRICES			
Net farm income			
1986.....	(48,328)	(9,376)	3,748
1987.....	(54,324)	(11,363)	3,195
1988.....	(60,819)	(16,503)	(867)
1989.....	(61,031)	(11,580)	5,190
Net worth			
1986.....	651,759	188,909	73,808
1987.....	582,435	162,546	60,680
1988.....	506,616	131,043	44,215
1989.....	430,585	104,462	34,302
Ending debt-to-asset ratio	69 percent	74 percent	78 percent
MODERATE PRICES			
Net farm income			
1986.....	(23,439)	5,388	16,193
1987.....	(21,735)	7,967	19,115
1988.....	(20,334)	6,099	17,465
1989.....	(18,343)	13,324	25,215
Net worth			
1986.....	676,649	203,673	83,253
1987.....	639,913	194,845	82,130
1988.....	602,579	184,640	81,641
1989.....	569,236	181,937	87,293
Ending debt-to-asset ratio	60 percent	54 percent	43 percent
HIGH PRICES			
Net farm income			
1986.....	10,308	25,401	33,066
1987.....	23,525	34,158	41,420
1988.....	34,643	38,419	44,803
1989.....	53,368	53,553	58,848
Net worth			
1986.....	775,733	230,126	96,126
1987.....	853,755	253,995	109,588
1988.....	944,791	282,792	126,390
1989.....	1,050,523	319,543	150,602
Ending debt-to-asset ratio	39 percent	30 percent	18 percent

Table 4. Projected Financial Situations of Illinois Cash-Grain Farms With an Initial Debt-to-Asset Ratio of Seventy Percent

Scenario	Tenure pattern		
	Full owner	Part owner	Full tenant
WEAK PRICES			
Net farm income			
1986.....	(84,132)	(20,091)	(555)
1987.....	(94,604)	(23,473)	(1,646)
1988.....	(106,134)	(30,127)	(6,176)
1989.....	(112,010)	(26,907)	(718)
Net worth			
1986.....	329,521	92,481	35,081
1987.....	219,917	54,007	18,209
1988.....	98,783	8,881	(3,050)
1989.....	(28,227)	(33,026)	(18,768)
Ending debt-to-asset ratio	102 percent	108 percent	112 percent
MODERATE PRICES			
Net farm income			
1986.....	(59,243)	(5,326)	11,890
1987.....	(62,015)	(4,143)	14,274
1988.....	(67,649)	(7,300)	12,200
1989.....	(69,322)	(1,589)	19,382
Net worth			
1986.....	354,410	107,245	44,526
1987.....	277,395	88,103	40,014
1988.....	194,746	65,781	34,976
1989.....	110,424	49,192	37,427
Ending debt-to-asset ratio	92 percent	88 percent	75 percent
HIGH PRICES			
Net farm income			
1986.....	(25,496)	14,686	28,763
1987.....	(16,255)	22,548	37,079
1988.....	(9,699)	25,872	40,168
1989.....	4,115	40,038	53,868
Net worth			
1986.....	457,495	137,697	61,399
1987.....	499,018	154,068	72,505
1988.....	550,765	175,116	86,554
1989.....	620,236	204,431	101,632
Ending debt-to-asset ratio	64 percent	55 percent	29 percent

in all three scenarios. Hence, under a wide range of prices highly leveraged tenant operators can achieve better incomes than owner operators saddled with large amounts of land debt.

The proportions of farm operators by debt-to-asset ratio and tenure pattern for a sample of farm operators in the Farm Business Farm Management Association (FBFM) are listed in the following table. Part owners accounted for about 65 percent of all farms, and full owners for only 8.2 percent. Tenant operators accounted for the balance (26.9 percent). As shown in Table 5, the debt-to-asset ratio tends to be higher for tenants than for part owners, and part owners tend to have a higher debt-to-asset ratio than full owners.

The Projected Economic Situation Of Hog Farms

To examine the ability of hog farms to prosper and survive, we projected their financial situations over the next four years under alternative price scenarios and initial debt-to-asset ratios. The simulated hog farm has 352 tillable acres, with 65 acres owned and 287 acres rented on a 50-50 crop-share basis. Of this, 244 acres are planted in corn, and 108 acres in soybeans. The farm operator is assumed to own all hog facilities and to farrow and finish 186 litters per year, with an average of 7.43 pigs weaned per litter. The costs of production are based upon averages for FBFM hog farms in northern and central Illinois. Crop production costs, yields, and interest rates are comparable to those used in the simulations for the cash-grain farm.

Grain prices used in these simulations are the same as those reported in Table 1. Results of the hog farm simulations are

reported in Table 6. Hog prices used for the three economic scenarios are listed in Table 7.

According to the scenario with weak prices a hog farmer with a debt-to-asset ratio of 20 percent will have a small positive amount of net farm income; net worth will grow slightly; and the debt-to-asset ratio will decline over time. With an initial debt-to-asset ratio of 50 percent, however, this same size farm will probably experience negative net farm incomes every year and show a significant drop in net worth. But the debt-to-asset ratio changes very little because both debt levels and asset values are declining. For a hog farmer with an initial debt-to-asset ratio of 70 percent, low prices will bring large negative net farm incomes for the next four years and almost total elimination of equity capital. This individual is not likely to survive in agriculture unless conditions improve.

Under the scenario with moderate prices net farm income is positive in all years for hog farmers with an initial debt-to-asset ratio of 20 or 50 percent. There is also some growth in net worth and some reduction in this ratio, but for the highly leveraged hog operator, the scenario with moderate prices could cause a significant erosion of equity capital and result in net farm income so low that operators will need to cover family living expenses.

For the scenario with high prices a hog farmer in the 20 or 50 percent debt-to-asset ratio will show good profits and strong growth in net worth. Likewise, the highly leveraged operator will show modest levels of net farm income and a strong growth in equity primarily because of the inflating value of land assumed under this scenario.

Table 5. Debt-to-Asset Ratio for a Sample of 4,001 FBFM Farm Operators, January 1, 1985

Debt-to-asset ratio	Full owner	Part owner	Tenant	All farm operators
	<i>percent of farm operators</i>			
0	14.3	5.4	14.5	8.6
1-20	51.5	29.1	20.7	28.7
21-40	16.8	23.4	16.3	20.9
41-70	12.8	26.0	18.0	22.7
70+	4.6	16.1	30.5	19.1
Total	100.0	100.0	100.0	100.0

Table 6. Projected Financial Situations of Illinois Hog Farms

Scenario	Debt-to-asset ratio (percent)		
	20	50	70
<i>dollars</i>			
WEAK PRICES			
Net farm income			
1986.....	15,506	(2,716)	(14,865)
1987.....	17,387	(1,969)	(15,636)
1988.....	13,681	(6,093)	(21,458)
1989.....	13,341	(6,621)	(23,893)
Net worth			
Initial	388,740	242,962	145,777
1986.....	389,246	225,246	115,913
1987.....	393,589	213,195	90,277
1988.....	395,849	197,001	58,819
1989.....	398,732	180,380	24,926
Ending debt-to-asset ratio	9.1 percent	52.2 percent	93.4 percent
MODERATE PRICES			
Net farm income			
1986.....	31,497	13,274	1,126
1987.....	35,519	18,162	4,495
1988.....	30,599	15,086	(47)
1989.....	30,137	16,841	40
Net worth			
Initial.....	388,740	242,962	145,777
1986.....	405,237	241,236	131,903
1987.....	422,313	247,279	126,221
1988.....	437,214	250,855	115,911
1989.....	451,854	256,001	105,802
Ending debt-to-asset ratio	8.3 percent	35.5 percent	71.9 percent
HIGH PRICES			
Net farm income			
1986.....	49,401	31,179	19,030
1987.....	53,308	38,189	24,522
1988.....	46,325	32,404	19,943
1989.....	42,360	29,064	18,662
Net worth			
Initial.....	388,740	242,962	145,777
1986.....	433,385	269,385	160,051
1987.....	471,606	299,858	181,433
1988.....	505,873	324,866	199,717
1989.....	538,007	347,392	215,584
Ending debt-to-asset ratio	6.5 percent	28.6 percent	49.0 percent

Table 7. Hog Prices Used to Project the Financial Condition of Illinois Hog Farms

Commodity	Levels of commodity prices	Year			
		1986	1987	1988	1989
dollars per hundred weight					
Market hogs	Weak	43.50	45.00	44.00	43.00
	Moderate	48.00	50.00	48.50	47.50
	High	52.50	55.00	53.50	52.00
Sows	Weak	38.50	40.00	39.00	38.00
	Moderate	43.00	45.00	43.50	42.50
	High	47.50	50.00	48.50	47.00

In evaluating the results of the hog farm simulation, it is important to remember that these results are based upon a sample farm where the operator owns a relatively small portion of the farmed land. If one simulated a hog farm with a much larger quantity of owned land, the results would tend to follow more closely the pattern for a full owner on a cash-grain farm.

Simulation results presented here suggest that future commodity prices, initial debt-to-asset ratios, and tenure position will have a strong bearing on the future

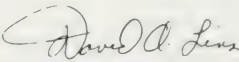
survival and prosperity of grain and livestock farmers. While farm operators may be able to do little about the general level of prices, they may be able to improve management skills. Although it is not illustrated in the above examples, the ability of a farm operator to achieve above average yields and below average costs of production are also critical for their survival and prosperity. In addition, farmers can change the nature of their debt-to-asset ratio and tenure position by their decisions on purchases and sales of agricultural land.

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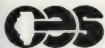
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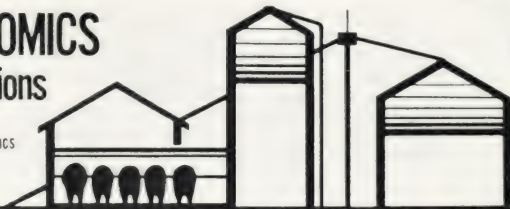


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FARM ECONOMICS

Facts and Opinions

DEPARTMENT OF AGRICULTURAL ECONOMICS
URBANA, ILLINOIS 61801



December 1985

85-17/The Tax Consequences to a Buyer of Forfeiting Land Purchased on an Installment Contract or of Transferring Assets to a Creditor in Exchange for the Discharge of a Debt

A substantial amount of farmland and other real estate was sold during the last eight to ten years on the installment contract basis. Recently, because of depressed farm income and land values, some of this land is being forfeited to the seller in exchange for releasing the buyer from any further liability. In addition, some debtors are transferring property to creditors in exchange for the discharge of a particular debt. These transactions can create significant tax liability. The purpose of this article is to create an awareness of some of the tax consequences of these transactions.

Recourse or nonrecourse debt. The tax consequences of forfeiture or transfer differ, depending on whether the debt is a recourse or nonrecourse debt. Most farm debt is recourse debt. If a person who is obligated on a recourse debt secured by property defaults on the payments and forfeits the property to the creditor, the creditor can obtain a judgment against the debtor for any amount of the debt not satisfied by the forfeited property. If the debt is nonrecourse, the creditor can only look to the property that secures the debt for satisfaction of that debt.

Income from the discharge of indebtedness. If the debt is a recourse debt, there is income from the discharge of indebtedness in situations where the fair market value of the property transferred to the creditor is less than the debt released or discharged. There is never income from the discharge of indebtedness when the debt discharged as a result of the transfer is a nonrecourse debt.

The following examples illustrate two tax situations that arise from recourse debt.

Example 1.

Contract price for unimproved land (tax basis)	\$100,000
Debt remaining at the time of forfeiture	60,000
Fair market value at the time of forfeiture	60,000

In this example, there is no income from discharged debt because the amount discharged (\$60,000) is not more than the fair market value of the property. The taxpayer has incurred a \$40,000 loss. This is the difference between the \$100,000 tax basis of the property (the purchase price of the land) and the amount the taxpayer "realized" on the transfer--\$60,000. The amount realized is the fair market value of the property transferred. If the land in this example was used in the trade or business of farming, the loss on the transfer is an I.R.C. § 1231 loss, which is generally fully deductible, first against gains from the sale of similar property, and then against other income of the taxpayer.

Example 2 (refinancing).

Tax basis of unimproved land	\$200,000
Debt remaining at time of transfer to creditor	600,000
Fair market value at time of transfer to creditor	500,000

In this example we can assume that the land was purchased at a time when land prices were lower and then later mortgaged to acquire other property when land prices were higher. Then, land prices declined substantially.

There is \$100,000 of income from the discharge of indebtedness because the debt discharged on the transfer is \$100,000 more than the fair market value of the property transferred.

There is also \$300,000 of § 1231 capital gain because the fair market value of the property transferred to the creditor (\$500,000) exceeds the tax basis of the property (\$200,000). The taxpayer should also be aware that because the \$300,000 gain is generally a capital gain, the amount excluded from regular income tax (60 percent x \$300,000 or \$180,000) is a tax preference item for purposes of computing the Alternative Minimum Tax. This could create additional tax liability beyond that initially considered.

THE TAX TREATMENT OF INCOME FROM THE DISCHARGE OF INDEBTEDNESS

The \$100,000 of income from the discharged debt resulting from the transfer in the previous example receives special tax treatment. If the taxpayer is in a Chapter 7 or Chapter 11 bankruptcy proceeding, or is not in bankruptcy but is insolvent immediately after the discharge, the income is not subject to tax. But the taxpayer's existing tax attributes (like carryovers of net operating loss, investment tax credit, and capital loss, as well as the tax basis) have to be reduced. If the taxpayer is solvent after the discharge, he or she may still be able to avoid taxation on the income from discharged indebtedness, but the exception is much more limited.

Insolvency is defined as "the excess of liabilities over the fair market value of assets." An appraisal of assets will usually be necessary to make this determination.

OPPORTUNITIES FOR TAX PLANNING

Financial distress frequently brings about the kinds of transfers or forfeitures discussed earlier. In addition, some or all of the property of the taxpayer may have to be sold to satisfy the demands of creditors. These transactions may occur outside of bankruptcy or just before and during bankruptcy, depending on the financial predicament of the taxpayer. The tax owed to the IRS is not a debt that can be discharged in bankruptcy or that can generally be compromised. Some taxpayers have managed to satisfy creditors by selling or forfeiting property only to create another tough creditor--the IRS.

There are many tax planning opportunities that can minimize any potential debt to the IRS. To take advantage of these opportunities, the taxpayer who is contemplating a forfeiture or transfer needs to consult fully with a qualified tax counselor.

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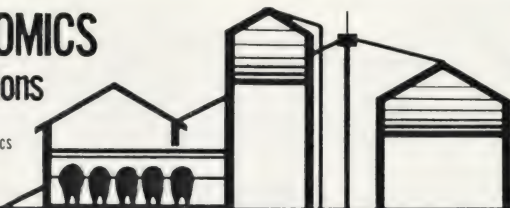
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FARM ECONOMICS

Facts and Opinions

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December 1985

85-18/No-Till Innovators in Illinois

Over the years various forms of reduced tillage have been introduced into Illinois agriculture primarily to conserve soil but with the promise of other benefits as well. No-till farming is perhaps the most striking example of a reduced tillage system. Although it has been around for several decades, no-till has been adopted slowly, and the areas where it has been accepted are unevenly distributed across the state. It is not clear why farmers try no-till, what their experiences are with it, or how it compares with conventional tillage in maximizing their objectives. These and related aspects of the adoption and use of no-till farming are the subject of this report. As part of a cooperative agreement with the Soil Conservation Service, the data for the report were gathered by rural sociologists at the University of Illinois from farmers who were identified as "innovators," the earliest users of no-till in their area.

NO-TILL AGRICULTURE DEFINED

Conventional tillage for row crops in the Midwest involves inverting the tilled layer and incorporating residues to prepare a clean seedbed. During the fall and spring, it may require many trips across a field. By contrast, no-till involves no inversion of the soil and calls for the maintenance of residues on at least 60 percent of the surface throughout the year. Weed control is accomplished entirely through the use of herbicides. Planting is done directly into killed sod, into residues from a previous crop, or into a two to four-inch strip cut by a coultter to provide a seedbed.

While the no-till label implies the absence (or near absence) of soil tillage, that is only one of the operations involved in the practice of no-till. No-till farming is an essentially modern production process, using many different scientifically based agricultural practices.

THE ECONOMIC IMPLICATIONS OF NO-TILL

The economic implications of no-till are difficult to accurately document, and they will continue to change with advancements in our understanding of no-till

and with the changes in agricultural technology, especially those related to chemical weed and pest control, and farm machinery. Evaluating the economics of adopting no-till includes also such factors as the management abilities of the farmer, his knowledge of no-till practices, the agronomic aspects of the farm, and the operator's ability to adapt no-till to his own particular situation. The economics of no-till have yet to be determined, and farmers have few well-documented guidelines for making decisions.

THE IMPLICATIONS OF NO-TILL FOR SOIL EROSION

No-till farming practices have an impact on soil erosion in Illinois. The amount of crop residue left on the surface of the soil is a significant inhibitor of erosion. For Illinois row crops, the amount of residue remaining after planting is especially important because the greatest amount and the most intense rainfall generally occurs then. Compared with other tillage systems, no-till leaves the perfect amount of residue at planting time, but other conservation tillage systems are also effective in reducing erosion. This fact is important because not all soils are suitable for no-till.

Reduced crop yields associated with no-till are often caused by the inappropriate use of a tillage system for a particular soil type. In Illinois no-till can be expected to result in reduced crop yields where there are problems with drainage and wetness, structural stability, water percolation, and impervious or restrictive layers in the profile and surface soil texture.

Approximately 35 percent of the tillable acres in Illinois are estimated by soil taxonomy to be suitable for no-till. Yet farmers do not utilize no-till on all the tillable acres most suitable for it.

THE HISTORICAL DEVELOPMENT OF NO-TILL IN ILLINOIS

Research and experimentation with no-till practices have been going on in Illinois for over twenty years. The first experience with no-till was at the University of Illinois's Dixon Spring Agricultural Center in 1962. Encouraging results at Dixon Spring in southern Illinois eventually prompted experiments in DeKalb county and Carlinville in central Illinois.

Publications, field days, and tours concerning just about every aspect of no-till have been held since no-till's first mention in the 1963 report of the Annual Illinois Custom Spray Operators' School. In addition, Illinois research was a factor in the adoption of no-till in western Kentucky and Tennessee, and throughout the Corn Belt, but the research was not all positive. Problems were identified with insects, weeds, and the relationship between no-till, types of soil, and yields.

The oil embargo in 1973 moved interest in no-till a step farther, as no-till began to be viewed as a way for reducing on-farm fuel consumption. Then, in the mid-1970s under pressure from the Federal Environmental Protection Agency, Illinois government agencies established a framework for the control of erosion in Illinois. Soil erosion limits by specific dates were established with the goal of reaching "T by 2000. The impetus for concern about erosion has come less from a perceived threat to productivity than from a concern about off-site damages to the water system of the state.

RESEARCH FINDINGS ON THE ADOPTION OF NO-TILL

A recent study on no-till has focused on the level of adoption of this practice in Illinois and on the motivations and experiences of 203 "innovators," those who were among the first to try no-till on their farms. The data on the innovators are provided separately for the southern and northern regions of the state. As Figure 1 indicates, the percent of the tillable acres in no-till for 1982 in the southern region of the state is with few exceptions considerably higher than in the northern section of the state. The time of adoption of no-till among the innovators in the south was considerably earlier than among the innovators in the north. As can be seen in Figure 2, nearly 20 percent of the southern innovators had first tried no-till before 1970, and half of them had tried no-till before 1975. Among the innovators in the north, only about 14 percent had tried no-till by 1975, and more than half of them had not begun no-till until the 1980s. The data thus confirm that not only is no-till more widespread in the southern region of the state, but it also had a considerable head start when compared to the northern region of the state.

In general, the innovators in the southern region of the state were somewhat younger when they first tried no-till. Only 23 percent of the farmers in the south were older than 45 when they first tried no-till, while 43 percent of the farmers in the north were over 45.

The innovators in the north are better educated. While about one-third of the innovators in the south had attended college, nearly half of the northern innovators attended college or graduated from it.

In terms of economic activities outside of the farm, we find that around 20 percent of both northern and southern innovators had off-farm jobs. Over two-thirds of the households of the innovators had off-farm income of more than \$20,000.

Although farms in the south are smaller than those in the north, among the innovators 62 percent of the farms in the south and 57 percent of the farms in the north are larger than 500 acres. Some differences can be observed in gross sales: more than 80 percent of the farms in the north have gross sales exceeding \$100,000, while among the southern innovators approximately 70 percent report gross sales that large. In both samples, the larger farms clearly predominate.

In terms of the land on which no-till is being used, one would expect that southern farmers would be more likely to have sloping and more erodable land in no-till than their counterparts in the north. But there are very few differences between the northern and southern farmers in terms of the slope of the steepest fields they placed into no-till the first year. Although the farms in the north generally have much less sloping land than those in the south, no-till in the north was most employed on relatively steeply sloping soils.

LEARNING ABOUT NO-TILL

The differences between how the innovators in the southern and northern parts of the state first heard of no-till are striking and reflect the relatively short length

Figure 1. Percent of Tillable Acreage in No-Till, 1982

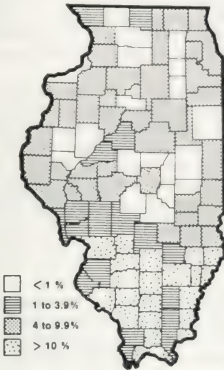


Figure 3. Percent of Innovators Adopting No-Till Within Two Years of Hearing About It

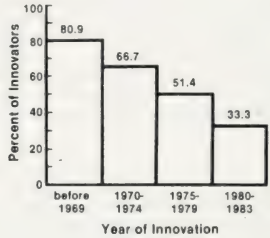
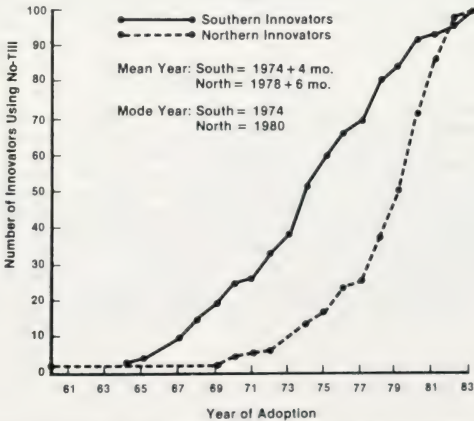


Figure 2. Level of No-Till Adoption, by Year



of time northern farmers have been introduced to no-till. In the south, George McKibben, long-time director of the University of Illinois research center at Dixon Springs, was identified as the major source of initial knowledge about no-till by 31 percent of the innovators. In the south, the Cooperative Extension Service is also reported relatively often as a first source of information. Radio, TV, trade magazines, and, in a few cases, professional journals, were mentioned by 28 percent of the innovators in southern Illinois as the first source of information about no-till.

In the north a different picture emerges. McKibben had relatively little influence, while governmental agencies collectively emerge as the major source of knowledge. Among the agencies, the Soil Conservation Service was the most frequently mentioned source of information about no-till. Second in importance among sources for northern innovators were "media and publications," which were mentioned by nearly half of the farmers as the place they first heard of no-till. In neither region were equipment dealers and farm shows significant sources of knowledge about this agricultural practice.

INNOVATION LAG TIME

The agricultural practices and technologies available at a given point in time exceed the actual level of use among farmers. Innovators are, by definition, those individuals for whom the lag time is comparatively short, but even innovators are not likely to adopt immediately upon learning of a new practice or technology.

Innovators were asked to estimate the length of time they knew of no-till before they actually tried it. The largest percentages knew of no-till two to three years before trying it out. In the south, 20 percent knew about it for more than five years, compared to less than 9 percent in the north. In Figure 3 the lag time between first hearing and trial is shown by the date that no-till was first used. The data indicate that later innovators spent more time between knowledge and utilization.

THE PERCEIVED MAJOR ADVANTAGES OF NO-TILL

When asked in an open-ended question what their main reason was for adopting no-till, "soil erosion control" was mentioned most often by farmers in both the north and south. In the north, however, 68 percent cited this reason first, whereas in the south a greater variety of reasons for trying no-till were identified. In the south, erosion control was cited by 47 percent of the innovators as the main reason; double-cropping and saving time comprised another 25 percent. Innovators thus decide to adopt no-till for reasons not exclusively related to the management of erosion. Southern and northern innovators have identified several other attributes of using no-till as being very important: moisture retention, reduced number of trips across the field, the potential for improved farm income, reduced soil compaction, and double-cropping. No-till is clearly not a one-dimensional practice to the farmers who adopt it.

A PERCEIVED MAJOR PROBLEM

Farmers were asked an open-ended question about what they thought would give them the biggest problem the first year. There is little question that the control of weeds and grass were viewed as the major potential problem by both groups. Beyond that problem, no one single problem seemed to assume much importance.

INCENTIVES

Whenever a new practice is introduced in agriculture, incentives are sometimes used to encourage farmers to try it. Two such incentives for trying no-till have been cash incentives and the availability of equipment for no-till farming at either no cost or a reduced cost.

In looking at subsidies as an incentive for the early adopters of no-till, the number of farmers receiving subsidies in the north (42 percent), is much greater than those in the south (11 percent). The motivation to adopt no-till by farmers in the south has in part been a result of the perceived potential of no-till for increasing production, either by double-cropping or putting marginal lands into production. In the north, farmers report first using no-till primarily because of the advantages it poses for soil conservation. This makes no-till an environmental, but probably not profitable, innovation; and under those circumstances subsidies are more influential in motivating farmers to adopt.

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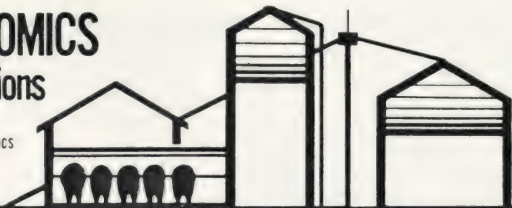
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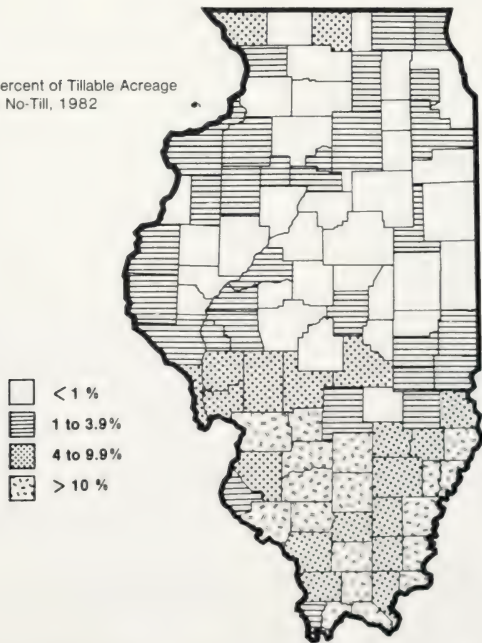


December 1985

85-18a/No-Till Innovators in Illinois

Figure 1 below is the corrected version of Figure 1
in *Farm Economics Facts and Opinions 85-18*.

Figure 1. Percent of Tillable Acreage
in No-Till, 1982



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